A FEATURE-BASED ACCOUNT OF LONG-DISTANCE ANAPHORA

BY

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KEY TO ABBREVIATIONS

[+A], [-A]: [+Anaphoric], [-Anaphoric]

ACC: Accusative

ADV: Adverbial

ASSO: Associates

CAUS: Causative

C_{HL}: Computational system

COMP: Complementizer

DAT: Dative

DEC: Declarative

DO: Direct object

FF: Formal features

GEN: Genitive

HON: Honorific

[+I], [-I]: [+Interpretable], [-Interpretable]

IO: Indirect object

L-feature: Features of a lexical item

L-related: Lexically related

MSC: Multiple subject construction

N-features (or D-feature): The nominal features

NOM: Nominative

OB: Object

PAST: Past tense

Phi features: Person, number, and gender features

PL: Plural

PRES: Present tense

Q-feature: Interrogative feature

SG: Singular

Spec: Specifier

SU: Subject

TOP: Topic marker

v: The light verb

V: The main verb

VB: Verbal elements, the light verb + the main verb

V-features: The verbal features

[+1]: A first Person

[+2]: A second Person

[+3]: A third Person

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A FEATURE-BASED ACCOUNT OF LONG DISTANCE ANAPHORA

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One of the important issues in current linguistics involves locality conditions governing possible antecedents of reflexives and other anaphors. The various proposals have sought for a universal principle to account for language-specific differences. My dissertation aims to resolve these issues and provide a unified account of binding phenomena in the Minimalist framework.

I propose that long-distance binding does not result from movement of X^0 or XP, but from movement of features at LF. In particular, I propose that long-distance binding anaphora have the [+Anaphoric] and [+Interpretable] features which undergo successive cyclic adjunction at LF, while locally bound anaphors have the [+Anaphoric] and [-Interpretable] features which are checked off and eliminated.

This proposal has four consequences. First, apparent long-distance binding in Picture-DP and expletive constructions is analyzed as local binding.

Second, the feature raising analysis results in subject orientation of the antecedent in long-distance binding, and no particular orientation in local binding along with the proposed structure.

Third, the feature raising analysis does not need other parameterization with respect to the blocking effect: the blocking effect does not derive from properties of Infl, but from the usual checking of features [+Anaphoric] and [±Interpretable].

Fourth, the backward anaphora observed in psych-verb and causatives and the anaphora which do not seem to require the c-command relation seen in prepositional phrases and dative and double object constructions are accounted for by the feature checking at LF. It is argued that feature checking takes place at the proposed LF structure where arguments are configurationally represented, depending on their thematic prominency.

I conclude that various long-distance and local binding phenomena result from covert feature checking to satisfy morphological properties, which is the very driving force for all other raisings. Our analysis is thus in accord with economy conditions in the Minimalist Program: (i) the

minimal cost is taken by raising features rather than the full categories, (ii) derivations are optimal by taking no superfluous steps, observing locality of movement, and (iii) a reference to D-structure and S-structure is dispensed with, simplifying the computational components of language.

CHAPTER 1
INTRODUCTION

This dissertation aims to provide a universal principle for long-distance and local binding anaphora in the framework of the Minimalist Program. The central claim is that anaphors recover their references by feature checking at LF. A consequence is that we can abandon the artificial distinction between monomorphemic and polymorphemic anaphora with respect to their structure, for example, the distinction between XP and X^0, and employ, instead, feature checking which is the very driving force for all other movements. The binding theory thus reduces to feature checking in this analysis. In Section 1, I discuss the theoretical framework of the Minimalist Program which will provide the bases for our analysis. In Section 2, I review the binding theory and show how it has been simplified in different versions since LGB (Lecture on Government and Binding (Chomsky 1981)). In Section 3, I give an introductory overview of each chapter.

1.1. Theoretical Framework

1.1.1. Basic Assumptions

This section discusses the Minimalist Program by Chomsky (1995b), which is an extension of his previous works (Chomsky 1989, 1992, 1994). The Minimalist Program assumes that in the human brain there is a language faculty which interacts with other systems. The language faculty consists of PF and LF components which are related with sound and meaning, respectively, and the two interface levels, PF and LF accordingly. The two interface levels are assumed to interact with the performance systems, an articulatory-perceptual system A-P and a conceptual-intentional system C-I. Linguistic expression L consists of pairs (π, λ) that are interpreted at the A-P and C-I interfaces. π is a PF representation and λ is an LF representation. The computational system C_{HL} maps an array of lexical choices to the pair (π, λ) by successive operations. The convergent derivation[1] which forms (π, λ) should be optimal, satisfying economy conditions.

[1] A computation (derivation) may converge at one of the interface levels: a semantically ill-formed derivation may converge at PF, while a phonetically ill-formed derivation may converge at LF. A derivation, however, converges if it converges at both interface levels, PF and LF; otherwise it crashes.

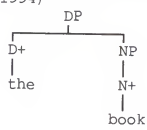
Levels of D-structure and S-structure are eliminated in the Minimalist Program in terms of virtual conceptual necessity. In this dissertation, I will continue to show why D-structure or S-structure is not a proper level for the anaphor binding, but LF is.

1.1.2. Phrase Structure in the Minimalist Program

1.1.2.1. Bare phrase structure

Chomsky (1994, 1995b) abandons the standard phrase structure in favor of the Bare phrase structure based on the conceptual necessity and economy considerations. He notes that the notations which are represented as bar-levels, such as X°, X' and XP, are relational properties of categories, not real entities formed by C_{HL}. Hence, he claims that standard X-bar theory is eliminated in favor of bare essentials. Differences between the Standard X-bar theory and minimalist assumptions with respect to the theory of phrase structure are illustrated as follows.

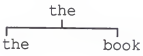
(1) Phrase Structure in the Standard X-bar theory (=(3i) in Chomsky 1994)



In the Standard X-bar theory, the and book are terminal lexical items, and D+ and N+ stand for properties of these items which are relevant to further computation. The D+ projects DP, and N+ projects NP.

Now compare the Standard X-bar theory to the Bare phrase structure.

(2) Bare Phrase Structure (=(3ii) in Chomsky 1994)



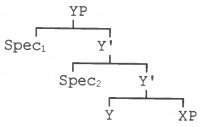
Unlike the Standard X-bar theory, there is no non-branching projection in the Bare phrase structure. The operation Merge which forms larger units out of those already constructed projects one of the objects and its head becomes the label of the complex. In (2), between two objects, the projects and becomes a label.

In terms of the Bare phrase structure, Chomsky claims that a lexical item can be both an X^0 and XP. As evidence, he notes that clitics share XP and X^0 properties. My dissertation is also based on this claim: I assume that an anaphor can be both an X^0 and XP, regardless of whether it is monomorphemic or polymorphemic. This will be elaborated in Chapter 4.

1.1.2.2. Multiple Spec theory

With regard to a structural relation in the Bare phrase structure, the head-complement relation is the most local relation of XP to a terminal head Y. Spec1 and Spec2 within YP enter into the Spec-head relation. The phrase structure in the Minimalist Program thus allows multiple Specs in principle. The multiple spec theory will be assumed through the dissertation providing a position for raising as drawn below.

(3)



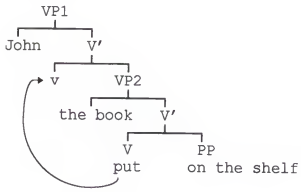
Chomsky assumes that $Spec_1$ and $Spec_2$ are equidistant targets for movement in terms of the notion of the minimal domain (Refer to (14) and (15) below). As a result, $Spec_1$ allows an escape hatch for superraising and provides an A-position for A-scrambling (see Chapter 3) in binding. A-scrambling is argued to be allowed in a language which has multiple Spec positions. Existence of multiple Spec positions means that multiple assignment of Case and agreement from the same head is possible. Binding in A-scrambling will be discussed in Chapter 3 and Chapter 6. The internal structure

of Korean in Chapter 2 depends on the multiple Spec structure as well.

1.1.2.3. The VP shell structure

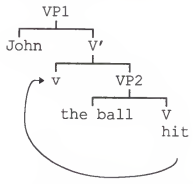
A Larsonian shell is proposed by Larson (1988) to accommodate several internal arguments of the verbs under X-bar theory. Chomsky (1992, 1994, and 1995b) adopts the VP shell structure to account for multiple arguments of the verbs and the causative or agentive role of the external argument as illustrated in (4)

(4) John put the book on the shelf



The main verb put raises to the light verb v by adjunction. As a result, the minimal domain is established with John, the book, and on the shelf. Consider another example from the transitive verb as in (5).

(5) John hit the ball



The main verb hit raises to the light verb v by adjunction. Along with the V-raising, John and the ball are in the same minimal domain. Raising the ball across the subject John for Case checking does not cause a violation of the Minimal Link Condition (MLC, Refer to (11)), since they are in the same minimal domain.

Chomsky (1995b) argues that not only the transitive verb but also intransitive verbs have a double-VP structure, and only unaccusatives lacking agents would be a simple VP structure. Throughout this dissertation, the VP shell structure is adopted.

1.1.3. Movement

1.1.3.1. Motivation for movement

In the minimalist program, movement is driven by morphological requirements. A derivation converges if only features of the morphological units are checked. A strong feature should be checked overtly before PF for convergence

(e.g., wh-movement and subject NP movement in English, and Verb raising in French). A weak feature should be checked covertly at LF (e.g. object NP movement and Verb raising in English).

1.1.3.2. Movement constraints

The notion of Last Resort (Chomsky 1986a, 1991a) is expressed in a principle named Greed in Chomsky (1992, 1994).

(6) Greed (= (7) in Chomsky 1994)

Move raises α to a position β only if morphological properties of α itself would not otherwise be satisfied in the derivation.

According to Greed, the operation Move cannot apply to α to enable some different elements to satisfy their properties. In this respect, Greed is always self-serving, and is not benefiting other elements. The following examples show that Greed cannot be overridden either by a search for intelligibility or by convergence.

(7) *there seem to a lot of us that... (= (26ii) in Chomsky 1992)

(8) *it is believed [a man to seem to t that...] (= (8i) in Chomsky 1994)

In (7), free-standing there has no semantic interpretation. However, a lot of us cannot raise to adjoin to there to provide semantic interpretation, since the DP has its Case properties satisfied internal to the PP. In (8), a man cannot raise to [Spec, IP] to satisfy the Extended Projection Principle (EPP) due to the lack of Case motivation.

Chomsky (1995b) claims that the notion of checking proposed in Greed is defective, since the status of a checked feature was unclear. In Greed, there was no differentiation with regard to visibility after checking: checking means deletion of the checked feature. However, phi-features of nouns such as person, number, and gender, remain visible at LF even after checking. To capture the relation between visibility at LF and accessibility to the computational system, Chomsky (1995b) gives a revised version of Last Resort as in (9).

(9) Last Resort (Chomsky 1995b, 280)

Move F raises F to target K only if F enters into a checking relation with a sublabel of K.

Consider the following example in terms of the revised Last Resort.

(10) a. [INFL seems [that John is intelligent]] (= (56) in Chomsky (1994))

b. John [INFL seems [that t is intelligent] (= (57) in Chomsky (1994))

In terms of Greed, John cannot raise to the matrix subject position, because Case is satisfied in situ, and thus there is no driving force for raising. In terms of Last Resort (Chomsky 1995b), the Case feature cannot raise, since it is already checked and eliminated in the embedded subject position. However, the categorial feature and phi-features of John can still raise to the matrix subject position, since they are visible at LF even after checking. Though raising is possible due to the categorial and phi-features, the sentence crashes, since John cannot offer the Case feature to be checked on the matrix Infl. In sum, nonconvergence of the sentence in (10) is explained by both Greed and the revised version of Last Resort, but the former fails to take account of visibility and its relation to accessibility to the computational system.

In this dissertation, I depend on the revised version of Last Resort without abandoning the spirit of Greed. An

element should have its own feature to be checked in order to move, and then during movement it can check other features. For example, raising of a wh-operator to [Spec, CP] is driven not only by the need to check its own feature but also by the need to check the Q-feature of C. Lasnik (1995) calls this version of Last Resort 'Enlightened Self Interest'.

We have seen why movement occurs and what is the driving force for movement. Next we will consider how movement takes place and how an optimal derivation is derived. In terms of economy considerations, movement must take the shortest step. This idea is formulated in the Minimal Link Condition (MLC).

(11) Minimal link condition (MLC) (Chomsky 1994: 14)

α must take the shortest move.

Given two derivations D1 and D2, the MLC states that D1 blocks D2, if its links are shorter. As Chomsky (1992, 1994) argues, the Empty Category Principle (ECP) (Chomsky 1986b) and Relativized Minimality (Rizzi 1990, Chomsky 1992) within the Government and Binding (GB) framework keep their status in the current framework as the MLC. Consider the following.

(12) *John seems that [it was believed [t' to be [t in the room] (= (72) in Chomsky 1994)

(12) is an example of superraising. The A-specifier it blocks proper government of t' by John under the GB framework. This is reinterpreted as a violation of the MLC in the Minimalist Program: John does not take the shortest move due to the intervening it. Thus a chain that violates the ECP is not a legitimate object at LF in the Minimalist Program either.

The MLC and Last Resort are incorporated in Attract/Move F as in (13).

(13) Attract/Move F (Chomsky 1995b, 297)
K attracts F if F is the closest feature that can enter into a checking relation with a sublabel of K.

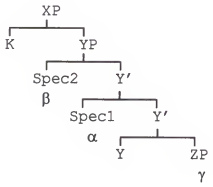
The notion of closeness used in Attract/Move F is represented in the definition of the minimal domain and equidistance.

(14) If α, β are in the same minimal domain, they are equidistant from γ.

(15) The minimal domain consists of the minimal complement domain of α, its internal domain and the minimal residue of α, its checking domain.

The following structure illustrates what can be taken as the closest element.

(16)



In case that K attracts a feature F in α, β cannot block such raising, because β is not closer to K, being in the same minimal domain of α. In a similar way, γ can raise to β, since α is not closer to β, being in the same minimal domain.

Finally, the economy considerations in the Minimalist Program yield the principle Procrastinate.

(17) Procrastinate

LF movement is preferred to overt movement

Procrastinate delays movement until the computational procedure reaches at LF, since LF movement is cheaper than overt movement. It is cheaper, because LF operations are carried out beyond directly observable effects. Thus raising

should occur as late as possible at the covert component, if it were not for PF convergence.

An analysis of anaphor raising, the main concern of this dissertation, will be based on the phrase structure and the constraints on movement we have reviewed so far. More detailed principles which are needed for the accounts of feature checking in anaphora will be presented in each chapter, as we proceed.

1.2. The Binding Theory

The binding theory is mainly developed by works in Chomsky (1980, 1981, 1982, 1986a, 1992, 1994, 1995a&b). The binding theory aims to provide the grammatical constraints on NP interpretation in argument positions. In LGB, Chomsky (1981) argues that binding is an A-binding to the extent that (i) An anaphor is A-bound in its governing category (Condition A), (ii) A pronominal is A-free in its governing category (Condition B), and (iii) An R-expression is A-free (Condition C) (Chomsky 1981, 188). Due to the presence of Picture-DP constructions, he defines the notion of governing category as including the anaphor, its governor, and a SUBJECT accessible to the anaphor. In his view, a SUBJECT refers to the subject of an infinitive, an NP, a small clause, and the AGR of finite clauses. And accessibility is filtered out by the i-within-i

condition. The binding facts in LGB are illustrated as in (18-19).

(18) a. John$_i$ likes himself$_i$

b. John$_i$ saw him$_j$

c. He$_i$ saw John$_j$

(19) They$_i$ thought that pictures of each other$_i$ were on sale

In terms of LGB, the anaphor is A-bound in the governing category in (18a), the pronoun is A-free in the governing category in (18b), and the R-expression is A-free in (18c). (19) needs the notion of an accessible SUBJECT to determine the governing category. Each other is the anaphor, of is its governor, and the AGR of the matrix clause is an accessible SUBJECT. The AGR of an embedded clause cannot be an accessible SUBJECT due to a violation of the i-within-i condition (for example, *[$_i$pictures of [each other$_i$]]). Thus the governing category is considered as the whole matrix clause in (19). Within the governing category, the anaphor is bound, yielding the grammatical sentence.

A conceptually simpler version of the binding theory is provided by Chomsky (1986a), eliminating the i-within-i condition and the notion of an accessible SUBJECT. Chomsky argues that the relevant governing category for an anaphor is the least CFC (Complete Functional Complex) containing a

governor of the anaphor in which the anaphor could satisfy the binding theory with some indexing (See Chomsky (1986a, 171)). In this view, the governing category for the anaphor in (19) is the matrix clause, since the binding theory is satisfied under BT-compatible (Binding Theory compatible) indexing within the matrix clause. The binding theory in Chomsky (1986a) thus predicts grammaticality of a sentence without a reference to the i-within-i condition and the abstract SUBJECT.

LF movement analysis of anaphora is suggested in Chomsky (1986a, 175). He argues that if anaphors are assumed to undergo LF-movement to the INFL position leaving a trace, Condition A of the binding theory will be determined not by the antecedent-anaphor relation but by the anaphor-trace relation. Then the binding theory will dispense with the notion of governing category, SUBJECT, and BT-compatibility and reduce to the principle ECP. This line of research has been done by Battistella (1989), Cole, Hermon, and Sung (1990), Pica (1991), Cole and Wang (1996) and many others. Critical review on this line of research will be provided in Chapter 4.

In search of more articulate LF movement approach for anaphors, Chomsky (1992, 57) points to a contradiction in the binding theory: Condition A of the binding theory does not force reconstruction, while Condition B and C do. From this

asymmetry, he suggests that Condition A should be distinguished from Condition B and C. This fact provides a basis for LF movement approach to obtain the effect of Condition A, separating out Condition B and C. Thus Chomsky (1992) proposes that the anaphor or part of it raises by an operation similar to cliticization. Consider the following.

(20) $John_i$ wondered [which picture of $himself_{i/j}$] [$Bill_j$ saw t]
(Chomsky 1992, 57)

The trace in (20) is a full copy of the wh-phrase. If Condition A were to be satisfied with reconstruction, the anaphor would be bound only to Bill, contrary to fact. However, the anaphor can be bound to both John and Bill in (20). With recourse to the LF-movement approach, the correct result is obtained: Move applies to the trace position and the operator position, which ends up with binding with the embedded subject and the matrix subject. As a result, Chomsky (1992) suggests that Condition A may be dispensable, if the approach based on LF cliticization is correct, and the effect of Condition A may follow from the theory of movement.

As the theory of movement changes, LF movement approach for anaphors is subject to change. Chomsky (1995b) proposes a feature checking theory of movement in order to satisfy the conceptual demands of simplicity and naturalness. Chomsky

argues that if there is no need for PF convergence, features raise covertly. For example, in associate raising in expletives, he claims that it is not the associate that raises but its unchecked features, leaving the rest in situ. Consider the following.

(21) there seems to be a man in the room (Chomsky 1995b, 273)

There checks the strong feature of Infl to satisfy the EPP (Extended Projection Principle), but it lacks Case and phi-features. Then the features of the associate raise to check the unchecked features on Infl. Chomsky (1995b) claims that the formal features of the associate have the binding and control properties and the position of formal features has A-position properties. In terms of the anaphor binding, it means that formal features of the associates can provide a binder in an A-position for anaphors. Under the GB framework, the full category was treated as an antecedent of an anaphor, but in the Minimalist Program, formal features could be the binder, or form a checking relation with the anaphoric feature (See Section 1.3. and Chapter 4 for the proposed anaphoric feature). The associate raising analysis implies that anaphors may also raise as features, since their movement is not noticed in the PF output. My dissertation

will provide a depth of analysis about feature checking in anaphor binding.

We have seen that the binding theory has been developed, seeking simplicity. If the analysis based on feature checking is on the right track, Condition A of the binding theory may reduce to the feature checking theory. The remaining problem is that Condition B and C are still kept, and hence the binding theory cannot be entirely eliminated. However, as we have discussed, the asymmetry between the anaphors, and the pronouns and R-expressions with regard to reconstruction, there are a good reason to distinguish Condition A from Condition B and C. With development in the theory of anaphora, in particular, the effect of Condition A, further research on Condition B and C may lead us to a simplification of the module of the grammar.

1.3. Organization of the Dissertation

Following the introduction in Chapter 1, Chapter 2 proposes that Korean has elaborated IP structures such as AgrP, NegP, TP, and CP. Based on the existence of multiple subject constructions, it is argued that subject, object, and verb move overtly to check their strong features. Analysis of the anaphor binding is crucially based on the Korean structure which I posit in this chapter.

Chapter 3 demonstrates that the anaphor binding applies at LF, not D-structure or S-structure. Assuming there is a movement of a certain kind for the anaphor binding, I argue that the movement should occur at LF, since it is not noticed at PF, and that the movement should be a feature raising, not the raising of a full category for the purpose of minimizing costs.

In Chapter 4, I propose that long-distance binding does not result from movement of X^0 or XP, but from movement of features at LF. In particular, I propose that long-distance anaphors have [+Anaphoric]([+A]) and [+Interpretable] ([+I]) features which undergo successive cyclic adjunction at LF, while locally bound anaphors have the [+A] and [-I] features which are checked off and eliminated. This proposal first leads us to explain the Picture-DP and the expletive constructions which have been exceptionally treated so far with respect to locality. Second, orientation of the antecedent is also accounted for in conjunction with the phrase structure that we posit for Korean and English. Third, the anaphoric feature raising is characterized as A-movement without constituting a case of improper movement.

In Chapter 5, I argue that the blocking effect does not result from the feature mismatch between an anaphor and its binder, or subject-Infl agreement, but from the general procedure of checking features such as [+A, -I], [+A, +I], and

phi-features. Presence and absence of the blocking effect in anaphors within a single language can be well accounted for without parameterizing Infl.

In Chapter 6, I discuss psych-verbs, causatives, dative and double object constructions, and other non c-commanding cases in order to incorporate them into the core anaphor binding under the feature raising analysis. I propose that the Experiencer object or Causee moves to a structurally higher position than the subject at LF. As a result, the so-called backward anaphora is explained by feature checking at LF. Finally, the concluding remarks are given in Chapter 7.

CHAPTER 2
INTERNAL PHRASE STRUCTURE OF KOREAN

In this chapter, I discuss issues of functional categories in Korean in the framework of Chomsky (1992, 1994, 1995a&b). In section 1 and section 2 it is suggested that both Agrs and Agro are responsible for Case Checking by Spec-Head agreement. It is argued that Case checking takes place in overt syntax due to strong Agr features. In section 3, I argue that verb movement in Korean takes place overtly to check strong V-features. Two types of negation are discussed in section 4 as evidence for the separation of AgrP from TP. In section 5, it is proposed that there is an independent CP category in Korean, based on the existence of LF Subjacency effects and the minimalist assumptions on feature checking. Finally in Section 6, the internal phrase structure of Korean is posited. Adopting Chomsky (1995b), Agrs and Agro which are posited in section 1 and 2, are eliminated in this section, since they are irrelevant for syntactic operations with regard to anaphor binding. Instead, T and V replace the function of Agrs and Agro. The procedure, positing and eliminating functional categories, is necessary to provide empirical evidence for the existence of agreement features in Korean,

and then to assign the function of checking agreement features, not to Agrs and Agro, but to T and V.

2.1. Existence of Agr

There have been controversial arguments of whether Agr exists or not in Korean. Y.-J. Kim (1990:1991), Y.S. Kim (1988), M. Kang (1988), J.-M. Yoon (1989) claim that Agr is not an independent functional category. This claim is based on the fact that Korean verbal morphology does not show person, number, and gender features. The phenomenon of long-distance binding has been used as strong evidence for the non-existence of AGR: it is claimed that long-distance reflexives in Korean can be bound across the clause boundary since there is no AGR accessible to the reflexives within the clause (Yang 1988).

On the other hand, Choe (1987), Han (1988), Moon (1989), Cho (1990), J.-Y. Yoon (1990), Kwon (1993), and Lee (1994) argue that Agr exists as an independent maximal projection in Korean. Their claim is based on the fact that there is agreement between the subject and the verb with respect to number and honorification. In what follows, I will demonstrate that the Agr elements are morphologically realized in plural and honorific forms.

2.1.1. Number Agreement

The plural morpheme tul is optionally attached to the verbal morphology[1] when the subject NP is plural, as shown below. However, when tul is realized in the verb, the number agreement feature should be checked and matched with a plural subject. See the following:

(1) ai-tul-i talye-tul-o-ass-ta
child-PL-NOM run-PL-come-PAST-DEC
'Children came in running'

(2) ai-tul-i talye-o-ass-ta
child-PL-NOM run-come-PAST-DEC
'Children came in running'

(3) *ai-ka talye-tul-o-ass-ta
child-NOM run-PL-come-PAST-DEC
'A child came in running'

In (1) and (2), we observe that the realization of the plural morpheme on the verb is optional. In (3), however, it is shown that if the plural morpheme is realized on the verb, agreement between the verb and the subject is obligatory.

[1] Choe, H. S. (1988) observes that the plural morpheme tul is affixed to other categories such as an adverb, an adjective, a nominalizer, and a complementizer within the clause boundary.

Thus the number agreement gives evidence that Agr exists in Korean.

2.1.2. Honorific Agreement

The honorific element si should be attached to the verbal morphology when the subject NP is respected in terms of age or social status.[2] When si is realized in the verb, the subject must agree with the honorific element in the verbal morphology. See the following.

(4) abeci-kkeyse[3] chayk-ul ilku-si-ess-ta
father-NOM+HON book-ACC read-HON-PAST-DEC
'(My) father read a book'

(5) *abeci-kkeyse chayk-ul ilk-ess-ta
father/HON+NOM book-ACC read-PAST-DEC

(6) atul-i chayk-ul ilk-ess-ta
son-NOM book-ACC read-PAST-DEC
'(His) son read a book'

(7) *Atul-i chayk-ul ilku-si-ess-ta
son-NOM book-ACC read-HON-PAST-DEC

[2]Choe (1988) argues that honorific agreement is obligatory in formal speech. Some (e.g., Yoon 1990) consider sentence (5) as marginally acceptable, since it can be used in non-learned and informal speech.

[3]kkeyse is an honorific form of the nominative case marker ka.

As in (4), when the subject is respected, the honorific morpheme is realized in the verbal morphology, otherwise the ungrammatical sentence in (5) is produced. In (6) and (7), when the subject is not respected, the honorific morpheme should not be attached to the verb. Hence, the honorific agreement between the subject and the verb provides evidence that there is an Agr node in this language.

2.1.3. Nominative Case Checking by Spec-Head agreement in AgrsP

The existence of Agrs will be supported by the fact that the Nominative Case is licensed by Agrs. Before going into detail about licensing the Nominative Case in Korean, I will discuss Case theory as proposed by Chomsky (1992). Case theory is based on the VP-internal subject hypothesis.

2.1.3.1. VP-internal subject hypothesis

Fukui (1986), Fukui and Speas (1986), Kuroda (1988), Larson (1988), Koopman and Sportiche (1991), Chomsky (1992, 1994, 1995a&b) propose that subjects are generated within [Spec, VP] and move to [Spec, IP] to obtain Case. The VP-internal Subject Hypothesis provides a symmetric account of the theta role assignment both to the internal and the external argument, on the one hand, and simplifies Case assignment, on the other hand. In this Chapter, it is assumed

that a subject NP originates inside VP in English and Korean, and its Case is assigned uniformly by agreement checking by Move/Attract F.

2.1.3.2. Licensing Case

Chomsky (1992) claims that T raised to Agrs is responsible for licensing the Nominative Case in English, while V raised to Agro licenses the Accusative Case. He argues that due to the Extended Projection Principle (EPP), the subject NP raises to [Spec, TP] overtly, though the object NP raises to [Spec, AgroP] covertly. Lasnik (1993), expanding on Chomsky (1992), illustrates the following examples.

(8) *has been arrested John

(9) John has been arrested

(10) The police have arrested John

(11) *The police have John arrested

The sentence (8)only converges by the overt raising of the Subject NP as shown in (9). In contrast, the overt raising of the object NP causes the sentence to crash as in (11). This is in conflict with the fact that the object NP should raise to [Spec, AgroP] to obtain the Accusative Case. The only way out is for the object NP to move at LF.

2.1.3.3. Nominative Case Checking in Korean

Nominative Case assignment in Korean is different from that of English: Nominative Case can be licensed by Agrs (Yoon 1990, Cho 1990, Choe 1988, etc). Consider the following examples.

(12) John believes him to be smart

(13) John believes that he did such things

In Chomsky's terms (1992), the Exceptional Case Marking structure is interpreted as raising of NP to the Spec position of AgroP dominating the matrix Verb. In the ECM structure of (12), the subject NP in the non-finite clause cannot be assigned Case due to the lack of Tense; hence, it raises to [Spec, AgroP] in the matrix sentence where it is assigned Accusative Case. On the other hand, the embedded clause in (13) is a finite clause with Tense, whereby the subject NP he is assigned the Nominative Case by an agreement relation with [T, Agrs]. Thus we can conclude that Tense is responsible for Nominative Case assignment in English.

Now let us turn to Korean examples. All the embedded sentences ((14)-(16)) below are nominalized, and hence have no tense element. Insertion of the tense element causes ungrammaticality as seen in (14b).

(14) a. [[Nay-ka keki ka-ki-ka] elyep-ta]
I-NOM there go-NOMINALIZER-NOM hard-DEC
'It is hard for me to go there'

b. *[[Nay-ka keki ka-ss-ki-ka] elyep-ta
I-NOM there go-PAST-NOMINALIZER-NOM hard-DEC

(15) [[apeci-kkeyse keki ka-si-ki-ka] elyep-ta]
father-NOM+HON there go-HON-NOMINALIZER-NOM hard-DEC
'It is hard for (my) father to go there'

(16) [[ai-tul-i keki kako-tul-sipeha-ki-ka] suyp-ta
child-PL-NOM there go-PL-want-NOMINALIZER-NOM natural
'It is natural for the children to want to go there'

As shown in (14), the embedded sentence has no tense element, but the subject NP nay ('I') is marked with the Nominative Case. This fact implies that unlike English, Nominative Case can be assigned even without Tense. Then what is the element that assigns Nominative Case? When the subject NP is replaced with apeci (father) as in (15), the honorific agreement element si appears in the verb. Morphological realization of the honorific element suggests that Agr is responsible for Nominative Case assignment. The plural agreement in (16) also provides evidence that Agr is relevant to Nominative Case assignment.

The ECM structures[4] and Control sentences in Korean provide further evidence that Nominative Case is assigned by Agr in Korean. Let us start with an ECM structure.

(17) a. [John considers him smart]].

b. [John-i [ku-lul yungliha-key] sayngkakha-n-ta]
John-NOM he-Acc smart-ADV consider-PRES-DEC
'John considers him smart'

In English, the small clause (17a) cannot assign Nominative Case to its subject, so that the embedded subject NP is exceptionally Case marked by the matrix verb in terms of

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[4]As Yoon, J.-Y. (1990) notes, the ECM structure in Korean is found in small clauses. The corresponding Korean structure with the English ECM in (12) is not a real ECM structure in Korean; first because Nominative Case can be assigned to the embedded subject NP by the embedded AgrP, and second because the Korean counterpart can have a Tense morpheme within the embedded clause. See below.

(i) John-i [ku-ka/ku-lul youngliha-ta-ko]
John-NOM he-NOM/he-ACC smart-DEC-COMP
mit-nun-ta
believe-PRES-DEC
'John believes him to be smart'
(ii) John-i [ku-ka/ku-lul youngliha-yss-ta-ko
John-NOM he-NOM/he-ACC smart-PAST-DEC-COM
mit-nun-ta
believe-PRES-DEC
'John believes that he was smart'

Then, a question arises of where the Accusative Case lul in the embedded subject NP comes from. Yoon, J.- Y. (1990) claims that it results from 'lul/ul' focalization.

the standard X-bar theory, or following Chomsky (1992), it raises to [Spec, AgroP] to check Accusative Case. Whether the embedded subject NP is Case marked by ECM or by raising, the fact is that Case cannot be assigned within the embedded non-finite clause.

In Korean, the corresponding ECM structure is represented as in (17b). The embedded subject NP is Case-marked with Accusative. Accusative Case marking of the subject NP provides evidence that Agr, a Nominative Case assigner, is not present in the small clause. If there is no AgrP in the small clause, agreement morphemes such as si and tul should not be allowed in this structure. This prediction is born out as seen in (18).

(18) a. *[John-i [apeci-lul hyunmyungha-si-key]
John-NOM father-Acc wise-HON-ADV
sayngkakha-n-ta]
consider-PRES-DEC
'John considers his father wise'

b. *[John-i [sensayngnim-tul-ul hyunmyung-tul-ha-si-key]
John-NOM teachers-PL-ACC wise-PL-HON-ADV(ha-key)
sayngkakha-n-ta]]
consider-PRES-DEC
'John considers the teachers wise'

The English Control sentence (19a) below shows that Case can be assigned neither by the matrix verb nor by Agr within the non-finite clause. That is why PRO is required in the embedded subject position. On the other hand, in Korean (19b), the overt subject NP is possible, because Agr which has the Case assigning ability is present within the non-finite clause.

(19) a. [John tried [PRO to leave]]

b. [John-i [0/caki-ka/ku-ka ttenalye-ko] nolyekha-yss-ta]
John-NOM 0/self-NOM/he-NOM leave-COMP try-PAST-DEC
'John tried to leave'

So far, we have examined the nominalized embedded sentences, small clauses and Control sentences to provide evidence that AgrP is responsible for Nominative Case assignment in Korean. When AgrP is present as in the nominalized clauses and the Control sentences, the subject NP can be assigned the Nominative Case by Spec-head agreement. On the other hand, when there is no AgrP as in the small clauses, Case is assigned by raising the subject NP to the spec position of AgroP in the matrix clause. Thus we conclude that AgrP is crucial for Nominative Case assignment, whereby it is an independent functional category in Korean.

2.1.4. Place for the Nominative Case Checking

It has been shown that the existence of AgrsP is based on the morphological realization of the honorific and plural morpheme and the Nominative Case checking by Agrs. Now let us investigate the issue of where the Nominative Case checking takes place in Korean.

Chomsky (1992) argues that movement is driven by morphological necessity. According to the Minimalist theory, a lexical item has inflectional features as an intrinsic property. It is assumed that these features may be strong or weak. Strong features are required to be checked off in overt syntax, and weak features at LF. Thus overt movement is motivated by morphological requirements to check off strong features before PF. If strong features remain at PF, the sentence crashes. On the other hand, covert movement is motivated by morphological requirements to check off weak features at LF. Therefore, we predict that T has strong NP licensing features in English so that the subject NP should raise to its Spec position in overt syntax to check off the strong features. Wh-operator features are also strong in English, and hence, wh-phrases should raise overtly. On the other hand, V-features in English are weak, inducing covert verb raising and object NP raising. As mentioned in (2.1.3.2), weak V-features are evidenced by the surface word order.

In Korean, however, the word order facts cannot reveal whether a movement proceeds overtly or covertly, since this language is a head-final, and hence a V-final language. Thus evidence must be found elsewhere. Based on the Bare Phrase Structure Theory (Chomsky 1994), Ura (1994) suggests that Multiple Subject Constructions (MSCs) induce overt raising of the subject NP in Japanese. Korean also has multiple subject constructions as follows.

(20) John-i kapang-i mukep-ta
John-NOM bag-NOM heavy-DEC
'Lit. John, (his) bag is heavy'

(21) namu-ka ip-i saykkal-i kop-ta
tree-NOM leaves-NOM color-NOM beautiful-DEC
'Lit. Tree, (its) leaves, (its) color is beautiful'

As Ura (1994) noted, under the conventional X-bar theory, the MSC is analyzed as occupying each Spec of the multiple heads, because in this theory only one specifier is projected by a head (Chomsky 1986b). The example (21) is illustrated below.

(22) $[_{AgrsP}$namu-ka Agrs...[ip-i Agrs...[saykkal-i Agrs $[_{VP}$ kop-ta]

On the other hand, the minimalist approach provides the bare phrase structure theory which allows multiple Specs to be projected by a single head. See below.

(23) [$_{AgrsP}$namu-ka, ip-i, saykkal-i Agrs [$_{VP}$kop-ta]]

The fact that each NP in [Spec, AgrsP] has the Nominative Case leads us to predict that the Spec positions are A-positions. According to Chomsky (1992), a position is an A-position, if it is L-related with an L-feature. He claims that the original Spec position of an L-head is narrowly L-related, and hence an A-position, while the adjoined Spec position is broadly L-related, and hence an A'-position. Ura (1994) suggests that in some languages, such as Japanese and Korean, the broadly L-related position may be analyzed into an A-position. He says that if the case happens where Agrs and T have the ability to check more than one set of phi-features and more than one Case feature, the feature-mediated relation between the head and the NP in the adjoined Spec position comes into existence. The MSC is such a case, because without the feature-mediated relation between the multiple subjects and the head, existence of the multiple nominative Cases cannot be accounted for: Agrs has more than one Case feature, by which the multiple subject NPs are licensed. Following Chomsky (1994), Ura (1994) thus proposes the following.

(24) Multiple Specs may be projected by a head X iff X has multiple sets of phi-features, and a position adjoined to XP may count as a Spec of X, in addition to X's canonical Spec, iff there is a feature-mediated relation between that position and X.

We have seen that Agrs has more than one set of phi-features and Case features in a language which allows MSC. Now let us consider how the MSC can be evidence for overt raising of the subject NP. If Agrs has multiple sets of the phi-features and Case features, it is natural to assume that Agrs in this language is strong in its features. Strong features on Agrs should be checked off by overt raising of the subject NPs, in order not to be visible at PF. If strong features remain at PF, the sentence crashes. Therefore, from the existence of the MSC, I conclude that the Nominative Case checking takes place in overt syntax in Korean.

2.2. Evidence of AgroP in Korean

2.2.1. Absence of Object-Verb Agreement with respect to Phi-features

It has been suggested that there may be agreement between the object and the verb in Korean. This claim is based on the fact that the NP bearing an honorific feature is selected as the object, when the verb has the honorific

morpheme si. However, a closer look at the examples provide evidence that these cases pertain to subject-verb agreement, not to object-verb agreement. In what follows, the so-called object-verb agreement is reanalyzed into the subject-verb agreement.

Kim, I.-S. (1992) argues that there exists agreement between the object and the verb with respect to honorification. Consider his examples.

(25) abeci-kkeyse cinci-lul tu-si-n-ta
father/HON+NOM dinner(HON)-ACC eat(HON)-HON-PRES-DEC
'(My) father is having dinner'

(26) *abeci-kkeyse cinci-lul mek-nun-ta
father/HON+NOM dinner(HON)-ACC eat-PRES-DEC
'(My) father is having dinner'

(27) tongsaying-i pap-ul mek-nun-ta
brother-NOM dinner-ACC eat-PRES-DEC
'(My) brother is having dinner'

(28) *tongsaying-i pap-ul tu-si-n-ta
brother-NOM dinner-ACC eat(HON)-HON-PRES-DEC
'(My) brother is having dinner'

In the above example, cinci ('dinner or meal') is used in relation to respected people in age and social status, and in other cases pap ('dinner or meal') is used. Kim (1992)

claims that the honorific verb tusinta (is having) selects the theme object and agrees with it in (25), otherwise, incorrect output is produced as in (28). In contrast, when the verb has no honorific element, the honorific theme object cannot be selected as in (26). Instead, the regular verb meknunta (is having) should select the regular object pap (meal) as in (27).

Kim's (1992) analysis turns out to be incorrect, if we focus on the subject NP. When the subject NP is respected as in (25) and (26), the verb should have the honorific morpheme; when the subject NP is not respected as in (27) and (28), the verb should not have the honorific morpheme. Thus, I claim that the above examples presented as the object-verb agreement are actually instances of the subject-verb agreement.

Then, what happens to the honorific object?. The honorific object cinci (dinner or meal) is preferred over the regular NP pap in case that there is subject-verb agreement with respect to the honorific feature. When there is no honorific counterpart of the regular NP, the regular NP is correctly selected as the object of the honorific verb. The examples are illustrated below.

(29) abeci-kkeyse kwaca-lul tu-si-n-ta
father/HON+NOM snack-ACC eat(HON)-HON-PRES-DEC
'(My) father is having a snack'

(30) abeci-kkeyse cenyek-lul tu-si-n-ta
father/HON+NOM dinner-ACC eat(HON)-HON-PRES-DEC
'(My) father is having a dinner'

The honorific verb tusinta (is having) in (29) selects the regular NP kwaca (snack) which has no honorific counterpart, and the sentence is grammatical. In (30), the regular NP cenyek (dinner) has its honorific counterpart cinci (dinner or meal): cinci (dinner or meal) is the honorific counterpart for both pap (meal) and cenyek (dinner). In spite of the presence of the honorific counterpart, the honorific verb tusinta (is having) selects the regular NP cenyek (dinner). If we replace cenyek (dinner) with pap (meal) in (30), the sentence is still well-formed. Thus we conclude that there is no independent object-verb agreement with respect to the honorific feature.

The same is true of the number agreement. Consider the following examples.

(31) ai-tul-i chayk-tul-ul kacye-tul-o-ass-ta
child-PL-NOM book-PL-ACC bring-PL-come-PAST-DEC
'The children brought the books'

(32) ai-tul-i chayk-ul kacye-tul-o-ass-ta
child-PL-NOM book-ACC bring-PL-come-DEC
'The children brought the (or a) book'

(33) *ai-ka chayk-tul-ul kacye-tul-o-ass-ta
child-NOM book-PL-ACC bring-PL-come-PAST-DEC
'The child brought the books'

(34) ai-ka chayk-tul-ul kacye-o-ass-ta
child-NOM book-PL-ACC bring-come-PAST-DEC
'The child brought the books'

The plural morpheme tul in the verb agrees with the subject, but not with the object. The plural morpheme tul in chayk-tul-ul (books) in (31) did not come from agreement with the verb, otherwise, the singular chayk-ul (book) in (32) would be considered ungrammatical. (33) and (34) show that there is no independent object-verb agreement in this language: mismatch with regard to number between the object and the verb does not cause ungrammaticality as seen in (32) and(34).

In this section, we have seen that there is no evidence for the object-verb agreement with respect to the honorific and plural morphemes. However, this fact cannot be reduced to the claim that there is no AgroP node, and hence no Spec-Head agreement in AgroP in Korean. Checking the Case feature may require AgroP in this language. Let us investigate such possibilities.

2.2.2. Agro for the Accusative Case checking

Although there is no morphological evidence for object-verb agreement, I argue that checking of the Accusative Case feature requires Agro in Korean. Chomsky (1992) proposes that the appropriate version of the Case filter requires two occurrences of Agr, if two NPs in VP require structural Case. In Korean, the Accusative Case is claimed to be structural Case (Y.S. Kang (1986)). Thus Agro is necessary to check off this Case feature. The next question then is where the Accusative checking takes place in Korean.

2.2.3. Place for the Accusative Case checking

Miyagawa (1993) argues that the accusative object in Japanese should move to [Spec, AgroP] to check its Case feature in overt syntax. He observes that the accusative object cannot move across the Genitive subject in overt syntax, in case that the subject is Case-marked Genitive. His argument is based on the following assumptions:

(35) Assumptions

i) The genitive Case is checked in [Spec, DP] at LF in Japanese.

ii) The position which has an unchecked feature cannot be crossed by the same type, otherwise a relativized minimality violation occurs.

Based on the above assumptions, let us consider the following example (Miyagawa 1993).

(36) *[[Hon-o_i John-no t_i katta] mise]-wa
book-Acc John-GEN bought] store]-TOP
Kinokuniya-da
Kinokuniya-COP
'The store where John bought a book is Kinokuniya'

Miyagawa notes that if the accusative object checks its Case feature at LF, A'-movement of the object NP should be allowed in overt syntax, and hence the sentence (36) should be grammatical, contrary to fact. On the other hand, if the accusative object checks its Case feature in overt syntax, it should undergo A-movement to the Spec position. Crossing the Genitive subject violates Assumption (ii) above which is a revised version of the Minimal Link Condition by Chomsky (1992: 1994), because the accusative object moves across the position which contains an element with an unchecked feature. Note that the Genitive subject stays in situ in overt syntax, leaving its features unchecked (Assumption 1). Thus Accusative Case checking in overt syntax correctly predicts ungrammaticality of (36) in Japanese.

The analysis given by Miyagawa (1993) applies to Korean cases on the condition that we adopt Assumption (35ii).

Assumption (35i) is empirically evidenced by scope interaction between the head noun of the relative clause and the genitive Cased-marked subject NP in Korean. See Miyagawa (1993) for more detail on the Japanese cases. Korean examples are illustrated below.

(37) [[[John-uy chayk-ul sa-n] sangcem-un] HUB-ita]
John-GEN book-ACC bought-COMP store-TOP HUB-DEC
'The store where John bought a book is HUB'

(38) *[[[chayk-ul John-uy sa-n] sangcem-un] HUB-ita]
book-ACC John-GEN bought-COMP store-TOP HUB-DEC
'The store where John bought a book is HUB'

The sentence in (38) is ungrammatical because the accusative object is scrambled across the genitive subject. With the same reasoning applied to the Japanese sentence, let us examine the two possibilities. First, if we assume that the object moves later at LF to check its Case, the scrambled sentence should be grammatical, because the object NP can undergo an adjunction process for scrambling in overt syntax, and thereby no violation of relativized minimality is caused. Second, if we assume that the object moves in overt syntax to check its Case, it should undergo A-movement. Crossing the subject NP John-uy leads to a relativized minimality violation, since the Genitive Case is assumed to be checked at

LF, and thereby the NP Case-marked with Genitive stays in situ in overt syntax. According to Miyagawa (1993), crossing the position which has unchecked features leads to a relativized minimality violation. Thus scrambling of the object chayk (book) across John-uy (John-GEN) is correctly predicted to be ungrammatical.

In sum, I have argued that Agro is present in Korean, and licenses the Accusative Case in this language. I also argue that the Accusative Case Checking process occurs in overt syntax based on the analysis of scrambling in which the Accusative object NP moves across the Genitive subject NP.

2.3. Overt V-movement

2.3.1. Evidence from Case Checking Process

The fact that both the Nominative and the Accusative Case-checking take place in overt syntax in Korean presupposes that Verb movement is carried out in overt syntax in this language. Otherwise, crossing the subject trace in [Spec, VP] by the object would violate relativized minimality. If the Verb moves in overt syntax to Agro, the positions [Spec, AgroP] and [Spec, VP] will be equidistant from the object position in the complement of VP, and hence crossing will not cause a relativized minimality violation.

2.3.2. Evidence from Clause-Internal A-Scrambling

Ura (1994) provides evidence for overt V-movement from clause-internal A-scrambling in Japanese. He proposes that the phi features of Agrs in Japanese (and Korean) are strong, and he suggests that the sets of features are not only strong but also multiple. According to his observation, Multiple Subject Constructions in Japanese and Korean support his claim, since Agrs should have more than one set of strong phi features in order to check off the multiple Nominative Cases. In the case of clause-internal A-scrambling, he argues that Agrs has two sets of strong phi features: one set to be checked off by the subject NP and the other set to be checked off by the scrambled NP. He thus says that it is necessary for two DPs to move to [Spec, AgrsP] to check off the two sets of strong phi features. Consider the following (Ura 1994: 94).

(39) $[_{IP}$karera-o$_i$ $[_{IF}[_{DP}$otagai$_i$-no sensei-ga] $[_{VP}$ t_i hihansita]]
they-ACC each other-GEN teacher-NOM criticized
'Lit. *'They$_i$, each other$_i$'s teachers criticized t_i'
(cf. *Otagai$_i$-no sensei-ga karera$_i$-o hohansita
each other-GEN teacher-NOM they-ACC criticized

(40) $[_{IP}[_{DP}\text{otagai}_k\text{-no}$ sensei$]_i$-o $[_{IP}\text{karera-ga}_k$ $[_{VP}t_i$hihansita]]

Each other-GEN teacher-ACC they-NOM criticized

'Lit. Each other$_k$'s teachers$_i$, they$_k$ criticized t_i'

(cf. karera$_k$-ga otagai$_k$-no sensei-o hihansita

they-NOM each other-GEN teacher-ACC criticized

In (39), the scrambled NP karera (they-ACC) binds the reciprocal, hence scrambling rescues the sentence, which would otherwise cause a Condition A violation (See Cf. in (39)). This fact leads us to predict that the position which the scrambled NP occupies is an A-position at LF. According to Saito (1992), movement to an A-position in overt syntax cannot be undone at LF. (39) also cannot be undone at LF, without violating the binding theory. Thus the binding facts and the blocking of the undoing effects are consistent with the claim that the scrambled NP position is an A-position.

On the other hand, in (40), the scrambled NP otagai-no sensei (each other's teacher) is lowered to its base-generated position at LF, satisfying the binding theory. Following Saito (1992), the undoing effect at LF is accounted for by analyzing the adjoined position as an A'-position. Then how is the adjoined position analyzed into an A-position in (39) and A'-position in (40)? And how is discussion on the types of the position related with overt Verb movement?

For the position to be an A-position, it should be L-related in the sense of Chomsky (1992:40).

(41) An A-position is L-related if it is in a local relation to an L-feature, i.e., in the internal domain or checking domain of a head with an L-feature.

Based on this definition, in (41), the scrambled element should be L-related with Agrs, since its position is analyzed as an A-position at LF. It is assumed above that Agrs has two sets of strong phi features in the case of clause-internal scrambling, of which one set of phi features and the Accusative Case feature are checked off by the scrambled NP. Accusative Case checking can be evidence that the scrambled NP is L-related with Agrs. The question arises of how the Accusative Case feature is checked off on Agrs which is usually the Nominative Case checking position. Ura (1994) suggests that the Accusative Case is checked off by V which is overtly raised to Agrs. Without overt V raising, the Accusative Case feature remains at PF, causing the sentence to crash.

Now the reasoning is summarized as follows. i) First, we assume that scrambling takes place in overt syntax. ii) Scrambling to the AgrsP adjoined position remedies Condition A violation of the binding theory. iii) Hence, the position

that the scrambled NP occupies is analyzed as an A-position. iv) A position is an A-position when it is L-related with the head. v) The scrambled NP in the AgrsP adjunction site is L-related with Agrs with respect to phi features and Case feature. vi) The Accusative Case of the scrambled NP is checked off on Agrs by the V raised onto it. vii) If scrambling takes place in overt syntax, V also has to raise overtly to check off the Accusative Case feature of the scrambled NP. Thus the overt V-raising is necessary to account for the well-formedness of the clause-internal A-scrambling Case.

2.3.3. Evidence from Maltese

Ura (1994) provides convincing evidence from Maltese about overt verb movement in the case of clause-internal A-scrambling. Consider the following. (Ura 1994, 103).

(42) A-Scrambling

Lil-kulhadd$_i$ mart-u$_i$ habb-et (*-u) t_i

Acc-everyone wife-his love-3SGF-3SGM

'Lit. Everyone$_i$, his$_i$ wife loves t_i'

(43) A'-Scrambling

Lil-huwa$_i$ Ganni rat-0-u t_i

Acc-himself John saw-3SGM-3SGM

'Himself$_i$, John$_i$ saw t_i'

In (42), when clause-internal scrambling takes place, the object agreement disappears. According to Ura (1994), this is because the phi-feature checking takes place between the scrambled NP and the Agrs, but not Agro in the case of clause-internal A-scrambling. In contrast, the usual A'-scrambling in (43) shows the object agreement as expected.

2.3.4. A-scrambling in Korean

In the case of Korean, overt verb movement cannot be detected easily, first because Korean is a V-final language, and second because object agreement is not morphologically realized as in Maltese. However, exactly the same paradigm shown in clause-internal A-scrambling in Japanese is found in Korean too.

(44) a. *[$selo_i$-uy sensayng-nim]-i [$kutul_i$-ul
each other-GEN teacher-HON-NOM them-PL-ACC
piphanhayss-ta]
criticized-Dec
'Each other's$_i$ teachers criticized them$_i$'

b. [$Kutul_i$-ul [[$selo_i$-uy sensayng-nim]-i
them-ACC each other-GEN teacher-HON-NOM
[t piphanhayss-ta]]]
criticized-Dec
'Them$_i$, each other$_i$'s teachers criticized t_i'

As shown above, scrambling the object NP to the sentence-initial position voids a Condition A violation. Scrambling provides an A binder for the reciprocal, showing clause-internal A-scrambling. For the adjoined position that the scrambled element occupies to be analyzed into an A-position, it should be L-related with Agrs. To have an L-relation, some feature checking should take place between the scrambled NP and Agrs. The overt verb raising on Agrs provides the Accusative Case feature, and this feature is checked off by the scrambled NP. Thus clause-internal scrambling provides support for overt verb raising in Korean.

So far I have argued that there exist Agro and Agrs in Korean, and both the subject NP and the object NP raise overtly to the Spec position. I claim that Verb raises overtly in Korean to check the Accusative Case feature against the object NP which is overtly raised to [Spec, AgroP]. In the following section, I will argue that AgrP, NegP and TP exist in Korean as independent categories.

2.4. Two types of Negation

Discussion of negation can show how Agr is separated from Tense and where NEG stands on the tree structure. There are two types of negation in Korean, pre-verbal, and post-verbal, as illustrated respectively below.

(45) sensayngnim-kkeyse ani o-si-yess-ta
teacher-NOM+HON not come-HON-PAST-DEC
'The teacher did not come'

(46) sensayngnim-kkeyse o-si-ci ani-ha-yess-ta
teacher-NOM+HON come-HON-NM not-do-PAST-DEC
'The teacher did not come'

The negative morpheme ani (not) precedes the verb o (come) in (45), while it follows the verb in (46). In the pre-verbal negation, the verb is amalgamated with the honorific morpheme and the tense morpheme. On the other hand, in the post-verbal negation, the verb is amalgamated with the honorific morpheme only. The nominalizer ci- is attached, since the verbal stem is separated from the tense morpheme (Kang M.-Y. 1988). The stranded tense morpheme is supported by ha- (do-Support) (Han 1987), which is in turn amalgamated with the negative morpheme ani (not).

Contra Han (1987) who claims V-adjunction for pre-verbal negation and I-adjunction for post-verbal negation, Yoon, J.-Y. (1990) argues that the two types of negation in Korean derive from the optional V-AGR raising to INFL, crossing the NegP. He bases his argument on the fact that the pre-verbal negation and the post-verbal negation are not different with respect to the scope of the negative morpheme.

(47) a. sensayngnim-kkeyse ani o-si-yess-ta
teacher-NOM+HON not come-HON-PAST-DEC
'The teacher did not come'

b. sensayngnim-kkeyse [$_{VP}$ t_V] [$_{AgrP}$ t_{AGR}] [$_{NegP}$ ani]
[TPo-si-yess-ta]
(t_{AGR} is a trace of v+agr, that is, o-si.)

(48) a. sensayngnim-kkeyse o-si-ci ani-ha-yess-ta
teacher-NOM+HON come-HON-NM not-do-PAST-DEC
'The teacher did not come'

b. sensayngnim-kkeyse [$_{VP}$ t_V] [$_{AgrP}$ o-si-ci] [$_{NegP}$ ani]
[$_{TP}$ha-yess-ta]

The above two sentences have the same scope interpretation, though the position of the negative morpheme is different. In (47), the amalgamated [V + Agr] moves to T, crossing Neg. Chomsky (1992; 1994) argues that the ECP reduces to the Minimal Link Condition (MLC). The verb o ('come') first moves to Agr by the shortest movement, satisfying the MLC. As a next step, the amalgamated V+Agr crosses the closest head Neg, violating the MLC, but the resulting sentence is well-formed. How is this phenomenon accounted for? Chomsky (1992) claims that Agr plays only a mediating role such as checking features, and when it has performed its function, it disappears. Therefore, the trace t_{AGR} does not cause violation of MLC, since it disappears as

soon as it finishes its job. In (48), the verb raises to Agr, amalgamating with the honorific agreement element. The tense morpheme -ess is supported by ha which is similar to 'do-support' in English. The nominalizer ci is attached to the complex verb o-si, since V+Agr is separated from the tense morpheme, as mentioned above.

Analysis of the two types of negation brings the following consequences. Along with the verb movement, the position of the negative morpheme in the two negation types first suggests that AgrP and TP are independent categories in Korean, separated from each other as shown above. Second, NegP itself is also an independent category, standing between AgrsP and TP.

2.5. Category CP

It has been claimed that there is parametric variation with regard to Wh-movement: One type, (e.g.) English, shows overt Wh-movement, while the other type, (e.g.) Korean, Chinese and Japanese, lacks such movement. The category CP, in English type languages, is well motivated by overt Wh-movement, because the Spec of CP is used as a landing site for Wh-phrases to avoid Subjacency. On the other hand, in Korean type languages, the status of CP is rather dubious, because the Spec of CP does not play a role as an escape hatch, on the assumption that there is no overt Wh-movement in these languages. Huang (1982) proposes that Wh-phrases in

Chinese-Japanese type languages undergo covert movement at LF, though they stay in situ in syntax. He further argues that LF Wh-movement does not obey Subjacency. We adopt his proposal that wh-phrases in Chinese-Japanese type languages move covertly, but we argue against the claim that there is no Subjacency in such covert movement. If we assume that LF Wh-movement does not obey Subjacency, the category CP is not well motivated, because the Spec of CP is not needed for a landing site of Wh-phrases.

In this section, I will demonstrate that we can find Subjacency effects even in languages which have been claimed not to obey Subjacency. Based on this fact, I will argue that CP is an independent category in Chinese-Japanese type languages, in particular, in Korean.

2.5.1. LF Subjacency: Pied-Piping Construction

Choe, J.-W. (1987) proposes that LF pied-piping which moves the entire complex NP is possible. He claims that apparent Subjacency violations in Korean and Japanese are derived from the pied-piping convention. Consider the following.

(49) [$_{CP}$[$_{IP}$[$_{NP}$[$_{CP}$[$_{IP}$Taroo-ga nani-o te-ni ireta] koto-o]
Taroo-NOM what-ACC obtained fact-ACC
sonnani okotteru no]]?
so much be angry Q
'*What$_i$ are you so angry about the fact that Taroo obtained t_i?'

(50) [$_{CP}$[$_{IP}$[$_{NP}$[$_{CP}$[$_{IP}$[$_{NP}$[$_{CP}$[$_{IP}$nwu-ka chwuk-ess-ta-nun] kisa-lul]
who-NOM die-PAST-DEC-COMP article-ACC
panpakha-n] salam-ul] manna-ss-upnikka]
criticize-COMP person-ACC meet-PAST-Q
'*Who$_i$ did you meet the person who criticized the article that t_i died?'

Following Choe (1987), it appears that there are no Subjacency effects at LF in the Japanese example (49), since Wh-movement across the two bounding nodes, IP and NP, does not lead to an ungrammaticality. However, if we assume that the whole NP headed by koto (fact) moves to the higher [Spec, CP], no Subjacency violation takes place, correctly predicting the sentence to be grammatical. Choe continues to argue that the same is true of the Korean example (50). It seems that the LF Wh-movement in (50) violates Subjacency, because the Wh-phrase moves across at least two bounding nodes that is, two NPs, to land in the highest Spec position of CP. But the resulting sentence is grammatical. He claims that the

grammaticality of sentence (50) is derived from the fact that the whole NP headed by salam (person) moves to the Spec position of the highest CP.

Choe (1987) argues that an examination of answer patterns to the above Japanese-Korean questions supports the pied-piping hypothesis of LF Wh-movement. Consider the following (Choe 1987; 351).

(51) a. ??Hon-desu
'It's (the) book'

b. Hon-o te-ni ireta koto-desu
'It's that fact that (Taro) obtained (the) book'

(52) a. ??Andropov-ipni-ta
'It's Andropov'

b. ??Andropov-ka chwu-ess-ta-nun kisa-ipni-ta
'It's the article that (says that) Andropov has died'

c. Andropov-ka chwu-ess-ta-nun kisa-lul
panpakha-n salam-ipni-ta
'It's the person who criticized the article
that Andropov has died'

As shown above, the preferred answers are the ones which copy the whole pied-piped construction in both Japanese and Korean. Based on this fact, Choe argues that the whole NP containing a Wh-phrase moves at LF, obeying Subjacency.

Unlike Choe, J.-W. (1987), Choe, H.-S. (1988) argues that LF Wh-movement in Korean does not obey Subjacency as illustrated in (53) and (54) below.

(53) ne-nun Chelsu-ka mwuet-ul ha-ess-ta-nun
you-TOP Chelsu-NOM what-ACC do-PAST-DEC-COMP
somwun-ul tul-ess-ni?
rumor-ACC hear-PAST-Q
'*What did you hear the rumor that Chelsu did t'

(54) ne-nun Chelsu-ka mwuet-ul ha-ess-ta-ko
you-TOP Chelsu-NOM what-ACC do-PAST-DEC-COMP
sayngkakha-ni?
think-Q
'What do you think that Chelsu did t'

(54) is parallel to the English counterpart, in which Wh-movement does not violate Subjacency, using [Spec, CP] as an escape hatch both in Korean and English. (53) is an instance of Subjacency violation, since the Wh-phrase moves across the NP barrier. However, the resulting sentence does not show Subjacency effects in Korean. Based on the structure (53), Choe, H.-S. (1988) argues that LF Wh-movement does not obey Subjacency, while Choe, J.-W. (1987) claims that it does obey Subjacency, if the pied-piping convention is assumed.

2.5.2. LF Subjacency Without Piped-piping Option

Though Choe, H.-S.(1988) claims that there are no Subjacency effects at LF with regard to Wh-movement, he still notes that two constructions such as a Wh-phrase and a Wh-phrase construed with totaychey (on earth, the hell) show some Subjacency effects without the pied-piping option in Korean. The following examples (55-56) come from Choe (1988; 98).

(55) ?? ne-nun [[enu-hwaka$_i$-ka ku$_i$-uy cakphwum-ul
you-TOP which-painter-NOM he-GEN work-ACC
salangha-n-ta-nun] sasil-ul] kiekha-pnikka?
love-PRES-DEC-COMP (the)fact-ACC remember-PRES-Q
'*Which painter$_i$ do you remember the fact that t loves his$_i$ work very much'

(56) ?? ne-nun [[Chelsu-ka todaychey mwuet-ul ha-ess-ta-nun]
you-TOP Chelsu-NOM the hell what-ACC do-PAST-DEC-COMP
somwun-ul] tul-ess-ni?
rumor-ACC hear-PAST-Q
'*what the hell did you hear the rumor that Chelsu did t'

The marginality in (55) and (56) gives evidence that there are Subjacency effects in Wh-movement for the above constructions. The Wh-phrase moves across the complex NP, producing, if not an ungrammatical sentence, at least, a marginal one. If the

whole complex NP containing a Wh-phrase would move, marginality would not be induced.

In Japanese, the 'what-- the hell' construction shows a clear Subjacency effects. The following example originally comes from Pesetsky (1987) and is cited by Watanabe (1992). Note that Watanabe cites the examples not to support the LF Subjacency effects but to propose that the apparent Subjacency effects derive from S-structure movement of an invisible entity.

(57) *[[Mary-wa John-ni [ittai nani-o] ageta hito]-ni
Mary-TOP John-DAT the hell what-ACC gave person-DAT
atta no?
met Q
'*What the hell did Mary meet the person who gave to John?'

(58) [[Mary-wa John-ni nani-o ageta] hito]-ni atta no?
Mary-TOP John-DAT what-ACC gave person-DAT met Q'
'*What did Mary meet the person who gave to John?'

In (58), Subjacency effects are covered by the pied-piping construction. However, when the pied-piping option is suppressed with the 'what--the hell' construction, Subjacency effects are manifested. The Wh-phrase in (57) cannot move out of an island due to Subjacency violation.

2.5.3. LF Subjacency in Relative Constructions in Korean and Japanese

Adopting Cole (1987), Watanabe (1992) presents cases of head-internal relatives in Japanese as another example for the apparent sensitivity of LF movement to Subjacency. Let us see his discussion of apparent Subjacency effects in head-internal relatives (NM= Nominalizer).

(59) [[John-ga [Mary-ga subarasii ronbun-o kaita
John-NOM Mary-NOM excellent paper-ACC wrote
to] homete ita]-no]-ga shuppan-sareta
COMP praised NM-NOM publish-PASS
'An excellent paper which John said in praise that Mary had written was published'

(60) ?*[[John-ga [Mary-ga subarasii ronbun-o kaita
John-NOM Mary-NOM excellent paper-ACC wrote
to-yuu] uwasa-o] kiita]-no]-ga shuppan-sareta
COMP rumor-ACC heard-NM-NOM publish-PASS
'An excellent paper which John heard a rumor that Mary had written was published'

(61) ?[[John-ga Tom-ni [Mary-ga itsu ronbun-o
John-NOM Tom-DAT Mary-NOM when paper-ACC
siageru-ka] tazunete ita]-no]-ga shuppan-sareta
finish-Q asked had-NM-NOM publish-PASS
'*The paper which John had asked Tom when Mary
would finish was published'

According to Watanabe (1992), head-internal relative clauses are a construction in which the head of the relative is contained in the relative clause but functions as the object of the main verb. He proposes that the head of relative clause is raised into [Spec, CP] at LF. In (59), the head of the relative clause subarasii ronbun (excellent paper) can be raised to [Spec, CP], producing a grammatical sentence. In (60), the head subarasii ronbun (excellent paper) moves across the complex NP, inducing a Subjacency violation. In (61), the head ronbun (paper) moves across a Wh-clause. Following Huang (1982), if we assume that a Wh-phrase moves at LF, the Spec position of the embedded CP is filled by the Wh-phrase when. The Subjacency violation takes place by crossing the filled Spec of CP.

The relative constructions in Korean show an island effect. Following Choe, H.-S. (1988), Moon (1989) and Yang (1987), Yoon, J.-Y. (1990) claims that the null operator moves into the Spec of CP in the Korean relative construction. If

the relative constructions result from movement, Subjacency effects are expected. Yoon, J.-Y. provides evidence with the following data.

(62) a. [0_i [John-i [Mary-ka t_i Bill-ekey cwu-ess-ta]-ko]]
John-NOM Mary-NOM Bill-DAT give-PAST-DEC-COMP
malha-]n] $Chayk_i$-i epse-ci-ess-ta
say PRT book-NOM lose-PASS-PAST-DEC
'The $book_i$ $which_i$ John said that Mary gave t_i to Bill was lost'

b. [0_i [John-i [Mary-ka chayk-ul t_i cwu-ess-ta]-ko]
John-NOM Mary-NOM book-ACC give-PAST-DEC-COMP
malha]-n] $Bill_i$-i o-ass-ta
say-PRT Bill-NOM come-PAST-DEC
'$Bill_i$ to $whom_i$ John said that Mary gave the book t_i came'

(63) *[0_k [0_i [John-i t_k t_i cwu-]-n] $Mary_i$-ka o-]n]
John-NOM give-PRT Mary-NOM come]PRT]
$chayk_k$-i epse-ci-ess-ta
book-NOM lose-PASS-PAST-DEC
'The $book_k$ $which_k$ $Mary_i$ who John gave t_k to t_i came was lost'

In (62a), the object chayk (book) is relativized. The null operator 0 moves to [Spec, CP], crossing no barrier. The

empty operator in [Spec, CP] is coindexed with the antecedent of the relative clause by a rule of predication. In (62b), the indirect object Bill is relativized. The null operator moves to [Spec, CP], where it is coindexed with Bill. In contrast, in (63), both the object and indirect object are relativized. Once O_j lands in the Spec of the most embedded CP, O_k cannot use the Spec of CP as an escape hatch. Crossing the most embedded CP leads to a Subjacency violation, producing an ungrammatical sentence. Thus we conclude that the Specifier position of CP is crucial for the null operator movement in Korean relative constructions.

2.5.4. S-structure Subjacency in Japanese

So far we have examined whether Wh-movement obey Subjacency at LF in Wh-in-situ languages such as Korean and Japanese. Watanabe (1992) argues that Wh-in-situ in Japanese involves S-structure movement of an invisible entity and the apparent Subjacency effects are due to this S-structure movement. Adopting Kikuchi (1987), Watanabe (1992) provides the following Japanese examples of Comparative Deletion.

(64) [[[John-ga e yonda to] iwareteiru to] Tom-ga
John-NOM read COMP say-PASS COMP Tom-NOM
uwasasiteiru yori(mo)] Mary-wa takusan-no hon-o
rumor than Mary-Top many-Gen book-Acc
yonde-ita
read-had
'Mary had read more books than Tom rumors that it is said that John read'

(65) *[minna-ga [naze Paul-ga e yonda ka] siritagatteiru
everyone-NOM why Paul-NOM read Q know-want
yori(mo)] John-ga takusan-no hon-o yonda
than John-NOM many-GEN book-ACC read
'John read more books than everybody wants to know why Paul read'

The Comparative clause in (64) embeds only declarative clauses. The complementizers such as to (that) do not constitute a barrier so that the comparative operator moves through the empty [Spec, CP], producing a grammatical sentence. In (65), however, Wh-island effects take place, when we have a Wh-phrase naze (why). If a Wh-phrase is in situ at S-structure in Japanese, island effects should not occur, since [Spec, CP] is empty at S-structure, and the empty Spec position will be utilized by the comparative operator. Based on this fact, Watanabe (1992) proposes that

the existence of island effects in (65) gives evidence that some invisible entity occupies [Spec, CP] at S-structure.

Scrambling is generally assumed to be an instance of S-structure movement. By investigating whether scrambling shows Wh-island effects or not, Watanabe (1992) provides further evidence that Subjacency effects result from movement of an invisible entity at S-structure. Consider the following (Watanabe 1992, 282).

(66) ?*sono hon-o_i [Mary-ga [dare-ga Tom-ni
that book-ACC Mary-NOM who-NOM Tom-DAT
[dare-ga t_i katta ka] tazuneta ka] siritagatteiru]
who-NOM bought Q asked Q know-want
'Mary wants to know who asked Tom who bought that book'

(67) ??[Mary-ga [dare-ga Tom-ni [dare-ga sono
Mary-NOM who-NOM Tom-DAT who-NOM that
hon-o katta ka] tazuneta ka] siritagatteiru
book-ACC bought Q asked Q know-want
'Mary wants to know who asked Tom who bought that book'

(68) ?sono hon_i-o [Mary-ga [John-ga Tom-ni
that book-ACC Mary-NOM John-NOM Tom-DAT
[boku-ga t_i katta to] itta to] omotteiru]
I-NOM bought COMP said COMP think
'Mary thinks that John told Tom that I bought that book'

(66), which is derived from (67), is a case of long-distance scrambling across two interrogative clauses. Crossing the two Wh-clauses makes the sentence worse. (68) is an instance of long-distance scrambling across two declarative clauses, and the resulting sentence is marginally acceptable. Based on this observation, Watanabe (1992) argues that [Spec, CP] is filled by something at S-structure, causing a Subjacency violation for (66).

2.5.5. The Category CP Motivated by Subjacency and Feature Checking

So far we have argued that the Wh-in-situ languages such as Korean and Japanese may have Subjacency effects. With the pied-piping hypothesis the LF Wh-movement always obeys Subjacency. Though we do not adopt such a hypothesis, there are at least some constructions which show Subjacency effects at LF: 'What the hell' phrases in both Korean and Japanese, 'which' phrases in Korean, head-internal relative clauses in Japanese, relative constructions in Korean. Watanabe (1992) even claims that there are Subjacency effects at S-structure by movement of an invisible entity in Japanese. Chomsky (1992) notes that if Watanabe is on the right track, there is no parametric variation with regard to Wh-in-situ. The Wh-phrases always raise overtly regardless of whether the language is Wh-in-situ or not. In terms of the checking

theory of Chomsky (1992), Watanabe's claim implies that the wh-operator feature is universally strong. Chomsky (1992) however claims that language differences reduce to the internal morphology of the Wh-phrases. The wh-phrases which have strong operator features raise to the checking domain of C in overt syntax by Greed to check off their features. The Wh-phrases which have weak operator feature raise later at LF by Procrastinate.

Whether we take the position that Wh-phrases universally raise overtly, or the other position that Wh-phrases raise at LF in some languages, we observe Subjacency effects in both cases. Even in those cases that Subjacency effects are not easily observed, there are certain constructions which show clear Subjacency effects. In terms of Standard X-bar theory, observance of Subjacency motivates the Spec position of CP, since the Spec position is used as an escape hatch for Wh-movement. In terms of the Minimalist Program, if a language has a Wh-phrase, its operator feature should be checked in a checking domain, that is, in [Spec, CP], whether the feature is strong or weak. Therefore, we conclude that the CP node is an independent functional category in the Wh-in-situ languages in general, and, in particular, in Korean.

2.6. Internal Structure of Korean Posited

Based on the previous discussion, the internal phrase structure of Korean is tentatively posited as in (69).

(69) $[_{CP}\ [_{TP}\ [_{NegP}\ [_{AgrsP}\ [_{AgroP}\ [_{VP}$ SU OB V] Agro] Agrs] Neg] T] C]

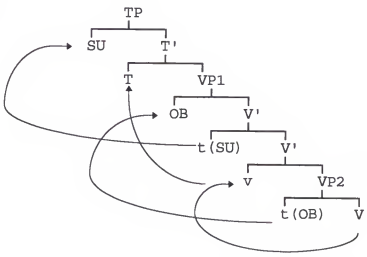
Now let us consider if we can simplify the proposed structure along the lines of Chomsky (1995b). Chomsky claims that AGR should be eliminated in the minimalist assumptions. He argues that functional categories such as T, C, and D are motivated by their semantic properties and for checking features of substantive categories. However, AGR is motivated only structurally to check features of subject and object and to provide a position for overt object-raising. AGR itself has no phi-features or an independent Case-assigning feature, which are provided by the V or T. He argues that if any other functional categories replace the function of AGR, AGR can be eliminated.

Then, how can we eliminate Agro which induces overt raising of DP? Chomsky (1995b) suggests that if we add a strong D-feature to v (the light verb in a Larsonian Shell) in the lexicon, object (OB) moves to [Spec, v] to check off the strong D-feature. Phi-features and the Case feature of

OB are also checked in this position by V (the main verb in a Larsonian Shell) which is raised to v.

Chomsky (1995b) continues to claim that elimination of Agrs follows that of Agro by adding an optional strong feature to T. The strong nominal feature of T attracts the subject, which is the closest DP, to check off its strong feature. The structure with elimination of Agrs and Agro is illustrated in (70).

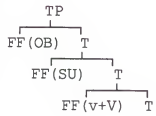
(70)



If a language lacks overt raising of subject and object, then the formal features (FF) of subject and object raise covertly to T by an adjunction operation. Raising of the whole category should be dispensable in the minimalist assumptions, were it not for PF-convergence. Covert raising structure is illustrated in (71). Move/Attract-F applies to the structure (70), and the structure of TP is formulated as a result of

covert subject, object and verb raising as in (71). FF indicates formal features.

(71)



Thus AGR which exists only for structural reason and has no effects on output can be eliminated for both overt and covert raising. T and V have the function of checking features of DPs, providing Spec for substitution in overt raising, or an adjunction site in covert raising.

So far we have examined overt and covert raising of subject and object along with verb raising. In an Agr-based theory of Chomsky (1989, 1991, 1992, 1994), the features of Agr have motivated such raising. In Chomsky (1995b), with the elimination of Agrs and Agro, the multiple-Spec theory comes into play: the features of T or V attract DPs, creating Specs for strong features or adjunction sites for weak features.

For the analysis of anaphora, which is our main concern, I adopt the multiple Spec theory in Chomsky (1995b). Agrs and Agro are eliminated in the structure of Korean, since they are irrelevant to syntactic operations with respect to anaphor

binding, and instead, T and V can do the same function of checking agreement features of DPs. I have taken the steps in which first I showed that Agr exists in Korean and then eliminated the functional category to replace it with the other functional categories such as T and V. We do not have to posit a redundant functional category, if other well motivated functional categories do the same function. However, elimination of Agr does not mean that there are no agreement features in Korean. Earlier in this chapter, I have shown that agreement features exist in the Korean verbal morphology in the form of honorific and number morphemes. The elimination of Agr affects their analysis to the degree that agreement checking takes place, not in Agrs or Agro, but in T or V. Thus the final Korean phrase structure for the analysis of anaphora is posited as follows:

(72) $[_{CP}\ [_{TP}\ [_{VP}$ SU OB V] T] C]

Our analysis of the anaphor binding is based on the proposed structure, and will be given in Chapter 4 after a discussion of levels of representation in Chapter 3.

CHAPTER 3
LEVELS OF REPRESENTATION FOR APPLICATION OF THE BINDING THEORY

The levels of representation where the binding theory applies have been the object of much debate. Belletti and Rizzi (1988) claim that Condition A applies at any level such as D-structure, S-structure, and LF, and Condition B and C apply at S-structure. On the other hand, Chomsky (1992) argues that Condition A should apply at LF only. With the elimination of D-structure and S-structure by Chomsky (1992, 1994, 1995a), we are left with only three choices: (i) Condition A applies at LF, (ii) at PF, (iii) at overt syntax. I propose that Condition A should apply at LF only, both in Korean and English.

In section 1, I will discuss the "Anywhere Principle," of Belletti and Rizzi (1988). I will show that the same data they provided supports the claim that Condition A applies at LF only. In section 2, I will review Chomsky's claim that LF is the level at which Condition A applies. In Section 3, I argue that anaphor binding should be analyzed as a feature raising at LF, since anaphor movement does not affect phonetic

output. Section 4 provides further supporting evidence from A- and A'-scrambling that the binding theory should apply at LF. In Section 5, it is argued that Condition B and C should apply at LF as well, not at any other level. The conclusion is given in Section 6.

3.1. "Anywhere Principle" By Belletti and Rizzi (1988)

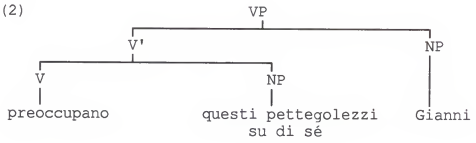
Belletti and Rizzi (1988) argue that Condition A is the "Anywhere Principle", satisfied at any level such as D-structure, S-structure, and LF. First of all, they claim that Condition A is satisfied at D-structure in the case of psych-verb constructions.

Following Jackendoff (1972), Belletti and Rizzi (1988) assume that an Experiencer is more prominent than a Theme in terms of thematic hierarchy. They extend this assumption to configurational hierarchy: an Experiencer is in a higher position where it c-commands a Theme. See the following sentence (Belletti and Rizzi 1988:313).

(1) Questi pettegolezzi su di sé preoccupano Gianni piùdi ogni altra cosa.
'These gossips about himself worry Gianni more than anything else'

According to Belletti and Rizzi, D-structure of (1) is as follows.

(2)



In the proposed structure, both the subject and the object are in the VP complement position. The Experiencer subject, Gianni, is in the higher position where it c-commands the Theme object Questi pettegolezzi su di sé. Thus the anaphor sé is correctly bound by its c-commanding antecedent Gianni at D-structure[1], satisfying Condition A in the binding theory.

Belletti and Rizzi (1988) further argue that D-structure is not the only level in which Condition A is satisfied. They take the following example as evidence that Condition A can be fulfilled at S-structure (or LF).

(3) They$_i$ seem to each other$_i$ [e$_i$ to be intelligent].

[1] More precisely, the NP containing the anaphor is c-commanded by the Experiencer Gianni.

Belletti and Rizzi consider (3) as a S-structure or an LF representation. In (3), they raises from the embedded subject position to the matrix subject position to obtain a Case at S-structure. Before raising, each other is not bound, but after raising, it is bound by the c-commanding DP they, satisfying Condition A. They thus argue that Condition A applies at S-structure or LF.

With wh-phrases, Belletti and Rizzi (1988) provide more evidence that Condition A is satisfied at D-structure or at LF.

(4) a. Which picture of himself$_i$ do you think [that Bill$_i$ likes t best]

b. You think [that Bill$_i$ likes which picture of himself$_i$]

(4a) is an S-structure of the pied-piping construction. The representation (4b) is the D-structure or LF counterpart of (4a). The anaphor is bound in (4b), while it is not in (4a). Thus they claim that Condition A is satisfied at D-structure or at LF, not at S-structure in wh-phrases. Now we can summarize the "Anywhere Principle" as follows.

(5) Types of sentences	Levels of Representation at which Condition A applies
a. Psych-verb constructions	D-structure
b. Raising constructions	S-structure or LF

c. Wh-phrases D-structure or LF

Note that there is no structural difference between LF and S-structure in raising constructions and between LF and D-structure in Wh-constructions. In those two constructions, the common level for application of Condition A is LF. In case of psych-verb constructions, if we assume that an Experiencer moves in a structurally higher position at LF where it c-commands a Theme,[2] it can be strongly argued that Condition A is applied at one level only, that is, LF for all three types of constructions. The very examples provided by Belletti and Rizzi thus lend a support for the claim that Condition A should apply at one level, i.e., LF.

3.2. Further Evidence by Chomsky (1992)

Chomsky (1992) claims that Condition A should apply at LF. In the following examples, take picture in (6) has both idiomatic and nonidiomatic interpretations: "photograph" and "take picture." In (7), have...attitude has a unitary sense as an idiomatic interpretation only.

(6) John wondered [which picture of himself] [Bill took t]

(7) The students asked [what attitudes about each other] [the teachers had t]

[2] Psych-verb constructions will be discussed in Chpater 6.

On the assumption that Condition A applies at S-structure in (6), himself would be bound only to John, not to Bill, yielding the nonidiomatic interpretation. The sentence has no way to obtain the idiomatic interpretation, since the anaphor cannot be c-commanded by Bill at S-structure.

Now suppose that Condition A applies at LF. (6) has the two LF options under the copy theory.[3]

(8) John wondered [which x, x a picture of himself] [Bill took x]

(9) John wondered [which x [Bill took [x a picture of himself]]

In the LF option (8), himself is bound to John. In this case, we have the nonidiomatic interpretation of take. In the option (9), himself is bound to Bill, which produces both the idiomatic and nonidiomatic interpretation. Application of the binding theory at LF produces the correct result that himself can take either John or Bill as its antecedent.

Let us go back to (7). At S-structure, each other is bound to the students, which is not a possible

[3] The "copy theory" states that the trace left behind is a copy of the moved element, deleted by a principle of the PF component in the case of overt movement. But at LF, the copy remains, providing the materials for reconstruction (Chomsky 1992: 49).

interpretation. However, at LF, (7) yields the correct interpretation. Consider the following LF options.

(10) The students asked [what x, x attitudes about each other] [the teachers had x]

(11) The students asked [what x] [the teachers has [x attitudes about each other]]

At LF, only the option (11) obtains a proper interpretation, since have...attitude has a unitary sense as mentioned before.

With the data provided by Chomsky (1992), we conclude that the reciprocal each other is correctly bound only at LF. In what follows, I discuss why Condition A should apply at LF only and provide supporting evidence from scrambling, psych-verbs and causative constructions.

3.3. Binding as a Feature Raising at LF

Chomsky (1995a) argues that the minimal operation should raise just the feature F which carries along enough material for convergence. In the form of pied-piping, Move-F carries along the set of formal features (FF) for PF or LF convergence. Economy conditions require that the pied-piping should be minimal, prohibiting extra moves. A full category may move only when it is required for PF convergence. If there is no need for PF convergence, the principle

desirable in the minimalist perspective, since any superfluous move is eliminated.

In the LF-movement theory of anaphora, it has been assumed that anaphors themselves move to recover their references at LF. In view of economy considerations, I assume that the [+anaphoric] feature, not the full category, raises to be checked off.[4] Chomsky (1995a) claims that movement of a full category should be completely dispensable, were it not for the need to accommodate to sensori-motor apparatus. Anaphor movement is not heard at phonetic output, so that such movement should occur covertly. If the movement operation occurs in the covert component, it should raise only features which are minimally pied-piped for LF convergence. Thus I propose that Condition A reduces to the general movement operation, Move-F, which is permitted by the Last Resort condition. Chapter 4 will discuss how Move-F applies to various types of structures containing anaphors. In this chapter, I argue that binding theory is satisfied at LF only. Evidence will be provided from scrambling, psych-verbs and causative constructions in the following sections.

3.4. Scrambling

Chomsky (1994) distinguishes Scrambling to A-position and A'-position. A'-scrambling involves full reconstruction

[4] The anaphoric feature raising will be analyzed in Chapter 4.

at LF, while A-scrambling cannot be undone by the reconstruction process at that level. It is observed that in Korean there are two types of scrambling: A-scrambling and A'-scrambling. Following Mahajan (1990) and Saito (1992), I propose that clause-internal scrambling in Korean is ambiguous between A- and A'- movement at LF, while long-distance scrambling can only be A'-movement. In this section, it is argued that the anaphor binding in A- and A'-scrambling shows that Condition A applies at LF.

3.4.1. Clause-Internal A-scrambling

First let us consider clause-internal A-scrambling which remedies the binding phenomenon. Consider the following Korean (12) and Japanese (13) examples.

(12) a. *$selo_i$-uy sensayngnim-i $kutul_i$-ul
each other-GEN teacher-NOM them-ACC
piphanha-yss-ta
criticize-PAST-DEC
'each other$_i$'s teacher criticized them$_i$'

b. $kutul_i$-ul $selo_i$-uy sensayngnim-i t piphanha-yss-ta

(13) a. *Otagai$_i$-no sensei-ga karera$_i$-o hohansita
each other-GEN teacher-NOM they-ACC criticized
'Lit. each other's teacher criticized them'

b. karera-o_i otagai$_i$-no sensei-ga t_i hihansita
they-ACC each other-GEN teacher-NOM criticized
'Lit.*'Them$_i$, each other$_i$'s teachers criticized t' (Ura 1994:94)

In Korean, (12a) is ruled out, since the anaphor cannot be bound by a c-commanding antecedent at LF. On the other hand, grammaticality in (12b) is enhanced when the object DP is scrambled to the front at overt syntax. The grammatical enhancement provides evidence that the scrambled position is an A-position. According to Saito (1992) and others, an A-scrambling cannot be undone at LF. Thus (12b) has no full reconstruction: The A-scrambled structure itself is the LF structure and the anaphor is properly bound at the level. The same is true of the Japanese cases. (13a) is ruled out, since the anaphor does not have a binder. However, the A-scrambled structure in (13b) remedies the ungrammaticality. Without a full reconstruction, (13b) itself is the LF structure, where the anaphor is properly bound to its antecedent. In the cases of clause-internal A-scrambling, the contrast between S-structure and LF with regard to the binding level cannot be captured, because the scrambled DPs are not reconstructed at LF, showing exactly the same structure.

3.4.2. Clause-Internal A'-scrambling

Now let us consider clause-internal A'-scrambling. (14) and (15) are Korean, and (16) is Japanese.

(14) a. John$_i$-i caki$_i$-lul piphanhay-ss-ta
John-NOM self-ACC criticize-PAST-DEC
'John$_i$ criticized himself$_i$'

b. caki$_i$-lul John$_i$-i t piphanhay-ss-ta

(15) a. *caki$_i$-ka John$_i$-ul piphanhay-ss-ta
self-NOM John-ACC criticize-PAST-DEC
'*Himself$_i$ criticized John$_i$'

b. *John$_i$-ul caki$_i$-ka t piphanhay-ss-ta

(16) Zibunzisin$_i$-o John-ga t$_i$ semeta (=(28b) Katada 1991)
self-ACC John-NOM blamed
'Himself$_i$, John$_i$ blamed t'

(14 a,b) satisfy Condition A at LF, since the scrambled anaphor in (14b) has a full reconstruction at LF. Suppose that the binding theory applies at overt syntax, then (14b) should be incorrectly ruled out, since the anaphor has no c-commanding antecedent. (15 a,b) are correctly ruled out at LF by Condition A, because John-ul in (15b) is reconstructed at LF. In (16), the anaphor in Japanese is bound at LF with a full reconstruction. If we suppose that the binding theory applies at overt syntax, the anaphor in (16) cannot be bound

to an antecedent, contrary to facts. With stronger evidence provided by the contrast between overt structure and LF in clause-internal A'-scrambling, we thus conclude that LF is the level where anaphors are properly bound by a c-commanding antecedent with a full reconstruction.

3.4.3. Long-Distance Scrambling

Long-distance scrambling shows that Condition A applies at LF. Consider the following Japanese sentences (Saito 1992).

(17) a.*[Otagai$_i$-no sensei]-ga [$_{CP}$ [$_{TP}$ Hanako-ga
each other-GEN teacher-NOM -NOM
karera$_i$-o hihansita]to] itta]
they-ACC criticized COMP said
'Each other's$_i$ teachers said that Hanako criticized them$_i$'

b.*[Karera-o$_i$ [[otagai$_i$-no sensei]-ga
they-ACC each other-GEN teacher-NOM
[$_{CP}$ [$_{TP}$ Hanako-ga t_i hihansita] to] itta]]
Hanako-NOM criticized COMP said
'Them, each other's$_i$ teachers said that Hanako criticized t_i'

(17a) is a Condition A violation. (17b) is obtained by long-distance scrambling of the antecedent karera-o at overt syntax. Unlike clause-internal A-scrambling, (17b) cannot remedy the Condition A violation. This means that the long-distance scrambling is analyzed as A'-scrambling and undergoes a full reconstruction at LF. At LF, the sentence is correctly ruled out. The same applies to Korean.

(18) a. *[[selo$_i$-uy sensayngn-nim]-i [$_{CP}$ [$_{IP}$ Sunhee-ga
each other-GEN teacher-HON-NOM -NOM
kutul$_i$-ul piphanha-yss-ta] ko] malhayss-ta]
them-ACC criticized-PAST-DEC COMP said-DEC
'*Each other's$_i$ teachers said that Sunhee criticized them$_i$'

b. *[Kutul$_i$-ul [[selo$_i$-uy sensayng-nim]-i
them-ACC each other-GEN teacher-HON-NOM
[$_{CP}$[$_{IP}$Sunhee-ga t_i piphanhayss-ta] ko] malhayss-ta]]
Sunhee-NOM criticized-DEC COMP said-DEC
'*Them, each other's teachers said that Sunhee criticized t_i'

Scrambling in (18b) does not enhance the grammatical status of (18a), since the anaphor is given no A-binder. If long-distance scrambling, like clause-internal scrambling, could be A-movement, (18b) should be incorrectly judged grammatical.

Thus (18b) indicates that long-distance scrambling in Korean is A'- movement, exactly as in Japanese. With reconstruction at LF, the anaphor cannot be bound to an antecedent, which correctly rules out the sentence.

So far the long-distance scrambling facts have shown that the binding theory applies at LF. However, the sentences we have been dealing with do not show that the binding theory should not apply at overt syntax. Assuming that the scrambled position is A'-position, the anaphor in (17b) and (17b) cannot be A-bound even at overt syntax, since the scrambled DP is in A'-position. As the sentences are ruled out at LF, they are ruled out at overt syntax as well, showing no contrast with respect to the anaphor binding between the two levels. Let us proceed for more examples.

(19) a. [Sunhee-ka [kutul$_i$-i selo$_i$-uy sensayng-nim-ul
Sunhee-NOM they-NOM each other-GEN teacher-HON-ACC
[piphanhayss-ta-ko] malhayss-ta]]
criticize-DEC-COMP said-DEC
'Sunhee said that they$_i$ criticized each other$_i$'s
teachers'

b. [selo$_i$-uy sensayng-nim-ul [Sunhee-ka [kutul$_i$-i t
each other-GEN teacher-HON-ACC Sunhee-NOM they-NOM
piphanhayss-ta-ko] malhayss-ta]]
criticize-DEC-COMP said-DEC
'Sunhee said that they$_i$ criticized each other$_i$'s
teachers'

In (19a), the anaphor is properly bound by a c-commanding antecedent. The long-distance A'-scrambled structure (19b) also shows that the anaphor is correctly bound at LF under reconstruction. Suppose that the binding theory applies at overt syntax, then the anaphor has no way to be bound, and the resulting sentence is incorrectly ruled out.

Starting from the clause-internal A-scrambling which argues for binding at LF, but does not argue against binding at overt syntax, we have seen stronger evidence that the anaphor binding should take place at LF, and not at the overt component. The clause-internal A'-scrambling and long-distance scrambling have provided a sharp contrast between LF and overt syntax: the binding theory should apply at LF, but should not do at overt syntax.

3.5. Application of Condition B and C at LF

So far I have shown that Condition A in the binding theory should apply at LF, not at any other level. In this

section, I examine at what levels of representation Condition B and C apply.

3.5.1. Belletti and Rizzi (1988)

Belletti and Rizzi (1988) argue that Condition B and C must be met at S-structure based on the following examples.

(20) a. It seems to him$_i$ [that it is likely [that he$_i$ will win]].

b. *He$_i$ seems to him$_i$ [e to be likely [e to win]]

(21) a. It seems to Bill$_i$'s sister [that he$_i$ is the best]

b. *He$_i$ seems to Bill$_i$'s sister [e to be the best]

The sentence (20a) is grammatical, since the pronoun he is free within the minimal domain. However, its D-structure counterpart (20b) is ruled out, because the pronoun is bound within the domain. In a similar way, (21a) is grammatical, since the R-expression Bill is free, but its D-structure counterpart (21b) is ill-formed due to a Condition C violation. From these facts, they conclude that Condition B and C should apply at S-structure. However, (20a) and (21a), which are treated as S-structures, also can be considered as LF structures. In this respect, it can be argued that Condition B and C apply at LF rather than S-structure.

3.5.2. Freidin (1992)

Freidin (1992) claims that the binding theory should apply at LF, but neither at D-structure nor at S-structure. Let us consider the following:

(22) a. $[_{IP}[_{NP}$ e] seems to her$_i$ $[_{CP}[_{IP}$Jill$_i$ to be happy]]]

b. *$[_i$Jill$_i$ seems to her$_i$ $[_{CP}[e_i$ to be happy]]] (Freidin, R. 1992: 293)

(23) a. $[_{IP}[_{NP}$ e] seems to John$_i$ $[_{CP}[_{IP}$he$_i$ to be happy]]]

b. *$[_{IP}$he$_i$ seems to John$_i$ $[_{CP}[_{IP}$ e_i to be happy]]]

(Freidin, R. 1992: 293)

The D-structure of (22a) has no problem in terms of Condition C, since the R-expression Jill has no c-command relationship with her, and hence, it is not bound by the pronoun. However, the S-structure of (22b) shows that her is bound to Jill, causing a Condition B violation. In a similar fashion, the D-structure of (23a) is ruled in, because there is no c-command relationship between John and he. But (23b) is ruled out by a Condition C violation, John being bound by he. The ill-formedness of the sentences indicates that Condition B and C should apply at a level other than D-structure, where those sentences are correctly excluded by the

binding theory. Freidin (1992) suggests that (22b) and (23b) are LF structures, and hence Condition B and C apply at LF.

3.5.3. Further evidence by Chomsky (1992)

Chomsky takes the following example which apparently supports the claim that the binding theory should apply at S-structure, not at LF.

(24) who [t said he liked [$_{\alpha}$ how many pictures that John took]]

In the above sentence, he c-commands John, hence, they should be disjoint in their reference, otherwise, a Condition C violation is induced. If LF movement adjoins α to who, we have the following structure.

(25) [[How many pictures that John took] who] [t said he liked t']

If α adjoins to who at LF, there is no c-command relation between John and he. Then, he can take John as its antecedent. But coreference between he and John produces an ungrammatical sentence. Therefore, from this fact, we are tempted to conclude that the binding theory should apply at S-structure.

Chomsky suggests that at LF only how many moves to the adjunction site, not the full complex NP. See the following structure.

(26) [[how many] who] [t said he liked [[t' pictures] that John took]]

If we assume that the LF structure is as above, c-command relation between he and John holds at LF. He cannot take John as its antecedent at LF due to a Condition C violation. The preceding argument thus leads us to the claim that the binding theory may apply not only at S-structure but also at LF.

Chomsky (1992) further argues that Condition B and C should apply at LF only after the reconstruction operation. Let us see his examples (Chomsky 1992: 57).

(27) a. John wondered [which picture of Tom] [he liked t]
b. John wondered [which picture of him] [Bill took t]
c. John wondered [what attitude about him] [Bill had t]

Under the Copy Theory, Chomsky notes that the trace t in (27) is a copy of the wh-phrase at the point where the derivation branches to the PF and LF components. Representations in (27) are obtained just before Spell-Out applies, and they are similar to the S-structure representations in the EST

framework. In (27a), he can have Tom as its antecedent, since he is free within the minimal binding domain, Tom being outside of the domain. But coreference between Tom and he makes the sentence ungrammatical. In (27b) and (27c) also, him can be coindexed with Bill, because they are in a different binding domain. However, coreference between him and Bill produces an ungrammatical sentence. From these facts, we induce that the binding theory for pronouns and R-expressions should apply at a level other than the level to which the above representations belong. LF could be the level in which the sentences are correctly ruled out. Reconstruction at LF accounts for impossibility of coreference between the R-expressions and the pronouns in (27).

3.5.4. Condition B and C in Korean

In Korean, Condition B and C apply at LF.

(28) *John$_i$-i ku$_i$-lul piphanha-yss-ta
John-NOM him-ACC criticized
'*John$_i$ criticized him$_i$'

(29) *Ku$_i$-lul John$_i$-i t piphanha-yss-ta

The pronominal ku in Korean should be A-free within the minimal domain. (28) is ruled out due to a Condition B violation. The A'-scrambled sentence (29) is incorrectly

ruled in, because the fronted pronominal ku is free, and the R-expression John is A-free too. The ill-formedness of the sentence leads us to conclude that the binding theory applies at LF after reconstruction process. The A'-scrambling has an undoing effect at LF where the pronominal ku is A-bound by John, producing an ungrammatical sentence.

(30)*ku_i-ka $John_i$-ul piphanha-yss-ta
'He_i criticized $John_i$'
(31) *$John_i$-ul ku_i-ka t piphanha-yss-ta

Condition C states that an R-expression is A-free. The R-expression John in (30) is A-bound by ku, hence a Condition C violation is induced. The A'-scrambled sentence (31) is expected to be well-formed, because both John and ku are A-free in a local domain. But this is not the case. The ill-formedness of (31) provides evidence that Condition C applies at LF, not at any other level.

3.6. Conclusion

We have argued that Condition A, B, and C do not apply at D-structure or S-structure, but at LF. In terms of economy considerations which pursue simplicity and conceptual necessity, "LF-only theory" is more desirable than the claim that the binding theory applies at all different levels.

Feature raising of anaphors at LF is preferred over anaphor movement, since anaphor movement does not affect the surface word order at PF. At the single level LF, anaphors recover their references, and pronouns and R-expressions are free. We thus need not posit D-structure and S-structure solely to account for the binding theory. In the following chapter, I will show how anaphors undergo feature raising at LF and what consequences follow.

CHAPTER 4
FEATURE RAISING ANALYSIS OF ANAPHORA

In Chapter 2, I posited the internal structure of Korean. In this chapter, based on the proposed structure, I analyze the behavior of long-distance anaphora in Korean, comparing it with local-binding anaphora in English. Section 1 discusses problems in the LF movement analysis of anaphora which is based on the XP/X^0 distinction. In section 2, I propose that the contrast between long-distance binding and local binding does not come from movement of anaphors but from movement of features. It is proposed that the long-distance binding phenomenon results from successive checking of [+Anaphoric] which is [+Interpretable], while local binding results from checking of [+Anaphoric] which is [-Interpretable]. Section 3 demonstrates how caki and himself recover their references by checking off [+Anaphoric] against a referential DP, observing movement principles in the minimalist assumptions. Section 4 discusses Picture-DP constructions which apparently show long-distance binding. It is claimed that the anaphor contained in Picture-DP constructions maintains the same morphological properties as a local binding anaphor if it is analyzed within the theory of

feature raising. Section 5 argues that subject orientation of the antecedent in long-distance binding naturally results from the feature-based analysis of anaphora. The same is true of non-orientation of the antecedent in the local-binding reflexives. In section 6, we deal with the expletive constructions which provide further evidence in favor of the feature raising analysis of anaphora. Section 7 characterizes anaphoric feature raising as A-movement both in Korean and English. It is shown that adjunction of the anaphoric features does not constitute an instance of "improper movement". In section 8, we conclude that we can dispense with Condition A of the binding theory, if our feature-based analysis of anaphora is on the right track. Eliminating additional assumptions posited solely for binding purposes, we can account for anaphor binding phenomena by virtue of general movement principles such as the Last Resort condition and the Minimal Link Condition (MLC).

4.1. Problems in the LF Movement Analysis

Apart from a parametric approach (Yang 1983, Rappaport 1986, Anderson 1986, Manzini and Wexler 1987), the inquiry has sought for a single constrained theory which explains both the long-distance and local-binding anaphora. The LF movement theory has been proposed since Lebeaux (1983) as the means of providing a unified theory of anaphora. The

theory developed here is indebted to authors such as Battistella (1989), Chomsky (1986a, 1992, 1994, 1995a&b), Cole, Hermon, and Sung (1990, 1993), Katada (1991), Li (1993), Pica (1987, 1991), Sung (1990), Yang (1991), and others. The main argument of the LF movement theory starts from the morphological status of reflexives; whether a reflexive is an X^0 or an XP.

Pica (1987), Cole, Hermon and Sung (1991, 1993), Sung (1990), and Lee (1992) argue that long-distance binding is made possible by the successive cyclic X^0 adjunction, while local
binding results from XP movement. They assume that monomorphemic reflexives such as ziji (Chinese) are X^0 reflexives and non-monomorphemic reflexives such as himself (English) are XP reflexives.

In the opposite direction, Katada (1991) and Pica (1991) argue that long-distance anaphors are XP reflexives, and local binding anaphors are X^0 reflexives. They claim that XP reflexives can be long-distance bound by operator movement (Katada 1991) or by their argumenthood (Pica 1991). X^0 reflexives, on the other hand, are claimed to be locally bound by the failure of the antecedent government of the non-deletable traces.

Without employing the XP/X^0 distinction, Li (1993) argues that both long-distance binding and local-binding

anaphora are uniformly X^0 reflexives. She suggests that local-binding anaphora can not move out of the local domain, being blocked by "improper movement".

In this section, I argue against the LF movement analysis with respect to the following points. First, the X^0/XP distinction is unnatural and arbitrary, because a lexical item can be both an X^0 and an XP syntactically, as noted by Chomsky (1994, 1995a&b). For example, himself in English is both an X^0 and an XP, regardless of whether it is monomorphemic or non-monomorphemic.

Second, the monomorphemic reflexives which are claimed to be X^0 actually show local binding phenomena. A German example is provided by Sung (1990) as evidence against the X^0/XP distinction.

(1) Marie$_i$ sagte daß John$_j$ sich$_{*i/j}$ gewaschen hat
Mary said that John self washed has
'Mary said that John washed himself'

The monomorphemic reflexive sich in German exhibits local-binding.[1] This is evidence against the claim that the X^0

[1] Concerning the structure of I wash, Miller (1993) argues that possibilities include (i) intransitive, pragmatically interpreted as reflexive: (ii) "abstract incorporation" of a (null) reflexive anaphor, (iii) diadic verbs which allow a pro object that may or may not be coindexed with the subject. In these cases the anaphor in (1) cannot be analyzed as an obligatory internal argument.

status of the reflexive necessarily results in long-distance binding.

Third, long-distance extraction is possible not only by the alleged X^0-movement but also by XP-movement with proper assumptions. This means that a reflexive does not have to be an X^0 to be long-distance bound. Thus, Pica (1991) argues that long-distance bound anaphors are not X^0 reflexives but γ-marked XP reflexives (See Lasnik and Saito 1984), and therefore, they are insensitive to the intervening heads. He claims that local-binding anaphora are X^0s which cannot be γ-marked due to their non-argumenthood, hence should be antecedent-governed by non-deletable traces. Katada also (1991) argues that the raising anaphors have the property of operators, undergoing A'-movement at LF. In her framework, the long-distance anaphors execute the XP operator movement with additional assumptions[2] which make long-distance extraction possible. Hence, the morphological status of anaphora and possibility of long extraction are not necessarily correlated.

Acknowledging this problem, I analyze the anaphor in (1) as an internal argument of the verb wash. Miller (1993) also notes that in French, these verbs have obligatory internal arguments (*je raserai 'I will shave'), while in English they have optionality (John washes (himself)).

[2] Katada (1991) adds another assumption to the barrier system proposed in Chomsky (1986b):she assumes that a CP immediately dominating IP does not inherit barrierhood from the IP with respect to [Spec, IP].

Fourth, what is subject to movement is not natural in the LF movement theory. As a mechanism to block long-distance binding for local binding anaphora, Pica (1987, 1991) and Katada (1991) assume that a part of the reflexive moves and its traces should be antecedent-governed. For example, they claim that him- in himself in English and zibun- in zibun-zisin in Japanese are subject to movement, and failure of the antecedent-government of their traces across a clause produces local-binding. This claim is first against the prohibition of the word-internal traces in terms of Baker (1988):e.g., prohibition of t-self and t-zisin. Second, in terms of Chomsky (1995b), a part of a lexical item is not a syntactic object which is subject to movement. The computational system C_{HL} applies only to the full categories, such as himself and zibun-zisin for PF convergence, or to their features in the covert component.

Thus the claim that the locality of the antecedent depends on the morphological status of anaphora is too arbitrary and unnatural. Whatever position we take between the X^{0} and XP distinction, we need additional assumptions and stipulations so that long-distance anaphora can be extracted across the local domain, while local-binding anaphora should stay within the local domain. Contra the LF movement analysis, in what follows, I propose a feature movement theory of anaphora (See also Lee 1996a&b&c&d&e)

which is in accord with the conceptual naturalness and economy pursued by the Minimalist Program.

4.2. Proposals

Following Chomsky (1994, 1995b), I assume that a reflexive can be both an X^0 and an XP. I propose that binding phenomena do not result from movement of X^0 or XP, but from that of features at LF. Then why do features raise at LF? Unlike overt wh-movement, movement of the reflexives is not noticed at PF, so that it should occur covertly. Chomsky (1995b) claims that if there is no need for PF convergence, Procrastinate principle prefers the covert option which raises features.

Then what kinds of features are involved in the feature raising analysis of anaphora? Adopting Chomsky (1995b), I assume that the [-Interpretable] features are eliminated, when checked, while the [+Interpretable] features, even though checked, can repeatedly be accessible to further computation. My proposal is that long-distance binding reflexives have the [+Anaphoric] and [+Interpretable] features which undergo successive cyclic adjunction at LF, while local-binding reflexives have the [+Anaphoric] and [-Interpretable] features which are checked off by the binder and eliminated. Based on this proposal, I analyze the

representative cases of local binding and long-distance binding from English and Korean respectively.

4.3. Feature Raising Analysis of Long-Distance Binding and Local Binding

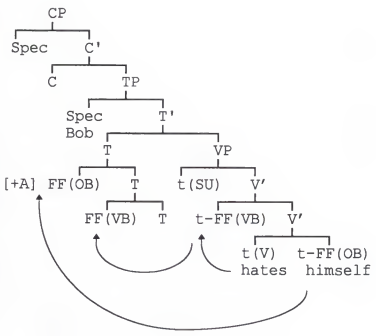
All the LF structures in this section are based on the Larsonian shell (Larson 1988, 1990) and the multiple-Spec theory of Chomsky (1995b). In English, overt subject (SU) raising and covert object (OB) and V raising are assumed, and in Korean, overt SU, OB and V raising are assumed. As mentioned in the previous section, the [+Anaphoric]([+A]) feature in English is [-Interpretable], so that it is eliminated after checking, producing the local binding of the anaphor. In Korean, the [+Anaphoric] feature is [+Interpretable], making the feature accessible to further computation, providing long-distance binding. Let us first examine the English cases.

Himself in English is locally bound within the clause. This is because the operation Attract/Move-F does not allow the [+Anaphoric] feature to move across the clause boundary.

(2) Bob_i hates $himself_i$

(3) $John_i$ thinks that Bob_j hates $himself_{*i/j}$

(4)



The subject DP Bob in (4) moves to [Spec, TP] in overt syntax to check off its own features and the strong D-features of Tense, satisfying the EPP. V and OB raise covertly due to their weak features. V adjoins to the light verb v, making the verbal element VB.[3] FF(VB)[4] raises to T at LF to be checked off by a checking relation with a sublabel[5] of T.

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[3] According to Chomsky (1995b), a Larsonian shell, v-VP configuration, can be taken to express the agentive role of the external argument. He states that transitive and intransitive (unergative) verbs have the VP shell structure, and only unaccusatives lacking agents would be simple VP structure. In (4), VB indicates the light verb v + the main verb V. Refer to Chapter 1.

[4] FF indicates formal features, and VB is v (the light verb) + V (the main verb)

[5] A sublabel of K is a feature of $H(K)^{zero}$ (=(30) in Chomsky 1995a).

After covert V-raising, FF(OB) of himself raises to T at LF. FF(OB) is checked off by a sublabel of T onto which FF(VB) is raised. The [+Anaphoric]([+A]) feature pied-piped within FF(OB) is checked off by the subject DP Bob. The reflexive himself recovers its reference when its anaphoric feature is checked off against the subject DP. In terms of the MLC, covert V and OB raising observe the MLC, because all the traces in-between (e.g. t(SU) t-FF(VB) t(V)) are inaccessible to Attract/Move-F, and hence do not block the movement.[6] Further movement of FF(OB) to the matrix T cannot be carried out as shown in (4), since in English the anaphoric feature, like Case feature, is assumed to be [-Interpretable] so that it is not accessible once it is checked off. Consequently himself shows the local binding phenomenon.

In Korean, caki shows the long-distance binding phenomenon. The anaphor can be bound by both the embedded subject and the matrix subject as illustrated below.

[6] Only the head of a chain CH enters into the operation Attract/Move (=(94) in Chomsky 1995a). The traces left behind are immobile (=(93) in Chomsky 1995a) and cannot bar raising.

(5) John$_i$-i [Bob$_j$-i caki$_{i/j}$-lul miweha-n-ta-ko]

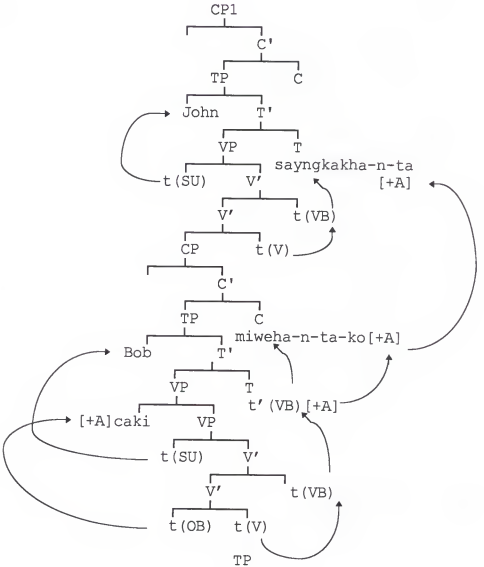
John-NOM Bob-NOM self-ACC hate-PRES-DEC-COMP

sayngkakha-n-ta

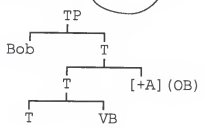
think-PRES-DEC

'John$_i$ thinks that Bob$_j$ hates self$_{i/j}$'

(6)



(7)



In the embedded sentence, Bob (SU) moves to [Spec, TP] overtly to check off its Case and phi-features. The D-feature of T is also checked by the subject Bob. V-raising is overt in Korean, evidenced by existence of MSCs (Multiple Subject Constructions).[7] V raises to v (the light verb), making the verbal element VB, and VB raises to T for checking agreement and Tense features and then to C for checking mood features. Caki (OB) overtly moves to the outer [Spec, VP][8] where its Case and phi-features are checked off. Crossing t(SU) does not cause a violation of the MLC, since the trace of SU is inaccessible to Attract/Move. Caki in the outer [Spec, VP] remains unchecked with regard to the [+Anaphoric] feature due to the lack of a checking relation with a DP.[9] The unchecked feature undergoes further movement to the embedded T at LF, where it is checked off against the subject Bob as shown in (7). Recall that we assume that the [+Anaphoric] is [+Interpretable] in Korean. Then the [+Anaphoric] remains accessible after checking, being further attracted to the embedded C and the matrix T. Between the embedded C and the

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[7] Acknowledging Jonas (1994), Chomsky (1995a) notes that MSCs are contingent on overt V-raising.

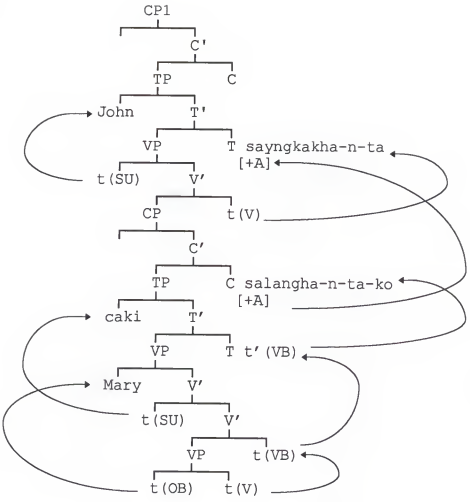
[8] Strong V-features induce overt object raising to the outer Spec position of v.

[9] The trace t(SU) in [Spec, VP] is not in the checking domain of v, because it does not head a non-trivial chain. Thus t(SU) cannot provide phi-features for caki to check off its [+Anaphoric] feature by a checking relation with v.

matrix T, there are traces t(V) and t(VB). The [+Anaphoric] can cross over these traces due to the immobility of traces (See Chomsky 1995b, section 4.5.6) without violating the MLC. On the matrix T, the [+Anaphoric] is checked off against the matrix subject John, showing the long-distance binding phenomenon. Consider the following sentence in which caki is the embedded subject.

(8) $John_i$-i [$caki_i$-ka Mary-lul salanha-n-ta-ko]
John-NOM self-NOM Mary-ACC love-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'$John_i$ thinks that $self_i$ loves Mary'

(9)[10]



Caki, as an embedded subject, first moves to [Spec, TP] to check off its Case and phi-features. The unchecked anaphoric feature in [Spec, TP] moves to C and then to the matrix T where it is checked off by the matrix subject John. Crossing t(V) does not cause a violation of the MLC due to the immobility of traces. The [+Anaphoric] feature in caki is assumed to be [+Interpretable], so that it is accessible for

[10] The VP shell structure of the matrix clause is abbreviated due to space.

further computation after checking. The following sentence provides evidence: if the sentence (8) is embedded in a larger clause, the [+Anaphoric] moves one clause up and is checked off once more by the matrix subject.[11]

(10) [Bob_i-i[$John_j$-i [$caki_{i/j}$-ka Mary-lul salangha-n-ta-ko]
Bob-NOM John-NOM self-NOM Mary-ACC love-PRES-DEC-COMP
sayngkakha-n-ta-ko] choochukha-n-ta]
think-PRES-DEC-COMP guess-PRES-DEC
(Lit.) 'Bob_i guesses that $John_j$ thinks that $self_{i/j}$ loves Mary'

So far we have shown that local and long-distance binding phenomena derive from morphological properties of the anaphor. The anaphor which has [+Anaphoric] and [+Interpretable] features is long-distance bound, while the one which has [+Anaphoric] and [-Interpretable] shows local-binding. Furthermore, the feature-based analysis of anaphora naturally accounts for the Picture-DP constructions which have been exceptionally treated as having long-distance binding.

[11] Fiengo and Kim (1990) note that caki can be bound by all the intermediate subjects and the matrix subject.

4.4. Picture-DP Constructions

It has been observed that the anaphor contained in Picture-DP constructions can be bound across the clause boundary, while the same anaphor maintains a strict locality in other constructions. This has been exceptionally treated, because the same anaphor exhibits both long-distance and local binding phenomena. Before going into a feature-based analysis, I will first examine the previous studies on Picture-DP constructions.

Picture-DP constructions have been explained by the notion of accessible SUBJECT and the i-within-i condition (Chomsky 1981), and later by the notion of BT-compatible indexing (Chomsky 1986a). In the framework of LF movement theory, Pica (1987) suggests that the X^0 reflexive contained in Picture-DP constructions of Icelandic is bound to the matrix subject by head adjunction through C. Pica (1991) argues that the XP reflexive contained in Picture-DP constructions of English is bound to the matrix subject by XP movement with special assumptions. Consider the following examples.

(11) a. Jón$_i$ segir þeim$_j$ [ad myndir sér$_{i/*j}$ eru (IND) til sölu
'John tells them that pictures of himself are on sale' (Pica 1987)

b. LF: Jón$_i$ INFL-*sér* segir þeim$_j$ [ad-*sér* myndir *t* eru (IND) til sölu]

(12) a. They$_i$ said that pictures of themselves$_i$ are on sale

b. LF: They$_i$ said [$_{CP}$*themselves*$_i$[that[$_{IP}$pictures of *t* are on sale]]] (Pica 1991)

In the LF structure (11b), Pica (1987) states that the X^0 reflexive moves through C to the matrix INFL where it is bound to the matrix subject. The X^0 reflexive contained in Picture-DP does not cause a violation of movement rules, since extraction is possible by head adjunction. In (12b), Pica (1991) claims that the XP reflexive moves through [Spec NP] and [Spec, CP] to be bound to the matrix subject. In particular, he argues that the whole reflexive moves to [Spec, NP] ([Spec, DP] in our analysis) and then to the embedded [Spec, CP]. From the embedded [Spec, CP] position, a part of the anaphor, that is, the adjunct anaphor them- in themselves, moves out of CP to a position where it will be governed by its antecedent. Such movement is actually banned in terms of the barrier system proposed by Chomsky (1986b), first because NP is a barrier, second because [Spec, CP] is a landing site for A'-movement such as a wh-phrase, not for A-movement. If there is an alternative solution to explain such binding phenomena within general movement principles, it will be preferable to the one with additional

assumptions. Let us go on to demonstrate that the anaphor binding in Picture-DP constructions cannot be carried out by the general movement principles, requiring additional assumptions.

Chomsky (1986a) observes that there is difference between movement rules and anaphoric binding as illustrated below.

(13) *[*the children*] seem that [[pictures of e] were on sale]

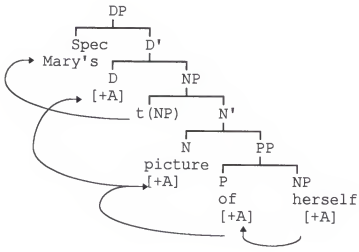
(14) They said that pictures of themselves were on sale

Chomsky (1986a) states that long-distance movement of the children is ruled out by Case-theoretic conditions and the locality conditions on movement. However, on the tentative assumption that the LF-movement analysis is on the right track, if we replace the children with themselves, the anaphor should be able to move to the position where it is bound to the matrix subject. Here arises the problem that we must add additional assumptions to the general movement principles solely to account for Picture-DP constructions.

The feature-based account of anaphor binding I proposed can solve this problem, minimizing additional assumptions and stipulations. First, consider the following sentence in which the anaphor is bound within its immediate DP.

(15) Mary$_i$'s picture of herself$_i$

(16)



In (16), Mary checks its Genitive Case in [Spec, DP].[12] The [+Anaphoric] moves to each head, and finally lands on the D head where it is checked off by a checking relation with Mary.

Assuming that the [+Anaphoric] in English is [-Interpretable], the feature is eliminated once it is checked off. Strict locality is thus observed as shown below.

(17) Joan$_i$ sold Mary$_j$'s picture of herself.$_{+i/j}$

In (17), the [+Anaphoric] feature is checked off and eliminated within the immediate DP. It cannot move further to be checked by Joan.

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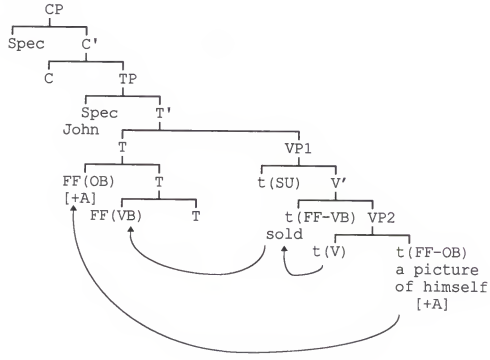
[12] According to Abney (1987), the subject of a DP originates from [Spec, NP]. The subject moves from its base position to [Spec, DP] to check its Genitive Case at syntax.

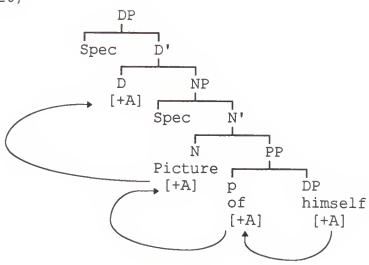
In some other constructions, however, the anaphor is bound to the matrix subject across the complex DP, since the anaphoric feature is not checked off within the DP due to the lack of a DP subject.

(18) John$_i$ sold a picture of himself$_i$

(19)



(20)



The [+Anaphoric] feature can not be checked within its immediate DP in (20), so that it moves to the matrix T, position pied-piped within FF(OB), as shown in (19). On the matrix T head, the Accusative Case feature and phi-features of OB are checked off against FF(VB) which is covertly raised onto T. A question arises of how the [+Anaphoric] feature is checked off by the subject DP, because the feature is embedded within the complex DP as below.

(21) a. $[_{DP=OB}$ a picture of $[_{DP}$himself]]

b. [FF(OB)[+Anaphoric]]

Chomsky (1994, 1995b) claims that regardless of how deeply the features are embedded, the computation "looks at"

only F. For example, the computation looks at only the wh-feature in the following construction.

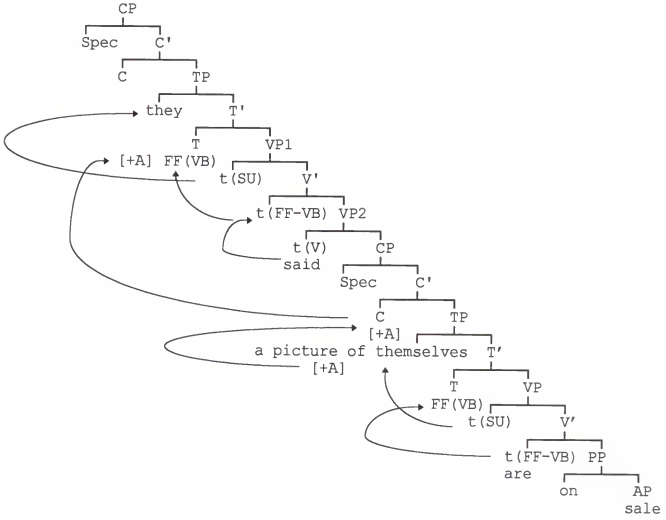
(22) Pictures of whose mother did you think were on the mantelpieces (Chomsky 1995b, 269)

Likewise, the [+Anaphoric] feature, however deeply it is embedded within FF(OB), is seen by the computation on the T head in (19). It thus enters into a checking relation with the subject, recovering its references.

So far we have seen the typical local binding cases of Picture-DP constructions. Next we will consider the case where the anaphor is bound across the clause boundary in Picture-DP constructions.

(23) They$_i$ said that pictures of themselves$_i$ are on sale

(24)[13]



[13] The VP shell structure is abbreviated in the embedded clause due to space.

The Picture DP (SU) moves to the embedded [Spec, TP] to check its Case and phi-features, and strong D-feature on T, satisfying the EPP. The [+Anaphoric] survives at the embedded [Spec, TP] due to the lack of subject of the Picture DP. Now the unchecked anaphoric feature alone[14] moves to the matrix T via C.[15] The traces, t(V) and t(FF-VB), in the matrix clause are not accessible to Attract/Move, assuming that traces are immobile (Chomsky 1995a). On the matrix T, the [+Anaphoric] is checked off by the matrix subject they, exhibiting an apparent long-distance binding. Here note that binding across the clause does not constitute an exceptional case, permitting the local binding anaphor to be long-distance bound. Within the feature raising analysis of anaphora, the anaphor maintains the same morphological properties as in the cases requiring strict locality: the anaphoric feature should be checked off and eliminated, and once eliminated, it is not accessible to further computation.

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[14] The [+Anaphoric] feature has been moved, pied-piped in the subject Picture-DP. In [Spec, TP], all features of the subject except the [+Anaphoric] were checked off against the T head. Computation "sees" the unchecked anaphoric feature which is embedded in Picture-DP, raising it to matrix T for convergence.

[15] Adjunction to an argument XP is prohibited (Chomsky 1986). But the C head is not an argument, attracting feature adjunction. Properties of the position (A or A') will be discussed in section 3.7.

Further evidence comes from the following sentences which are taken from Aoun (1985, 69).

(25) They$_i$ liked the fact that pictures of each other$_i$ would be on sale.

The anaphor above is bound across the sentential complement and the complex DP complement. Aoun (1985) explains the behavior of the anaphor based on the notion of accessible SUBJECT. The i-within-i condition allows the anaphor to be bound to the matrix subject. As in the LF movement theory, if the anaphor moves as an XP, the ECP is violated due to the barriers: the anaphor should move out of its own DP, CP, and then the next DP the fact. If it moves as an X^0, it can be extracted, but it costs more than feature movement, because the X^0-movement has no effect at PF. If a movement has no effect at PF, features should raise instead to achieve economy. By the successive cyclic adjunction to each head, the [+Anaphoric] raises to the matrix T, and is checked off by the matrix subject. Thus, feature raising is preferred to give an account for the binding phenomenon in (25). In fact, binding with the matrix subject in (25) is not a case of long-distance binding. The [+Anaphoric] is not repeatedly accessible to further computation as in the real long-distance anaphors, but it raises until it finds a

position where checking and elimination occur. The anaphor preserves the same morphological properties as a local-binding anaphor.

Let us now consider Picture-DP constructions with a wh-phrase.

(26) [John$_i$ wondered [which picture of himself$_i$ Mary liked]] (Aoun 1985, 66)

(27) [John$_i$ wondered [which picture of himself$_{i/j}$ Bill$_j$ saw] (Chomsky 1992, 54)

Aoun (1985) argues that it is necessary to assume that the governing category in (26) is not the embedded CP, but the matrix CP, because the anaphor in the embedded [Spec, CP] is bound to the matrix subject. However, (27) shows that the governing category can actually be both the embedded CP and the matrix CP, giving no ground for Aoun's argument. In this case, the behavior of the anaphor does not look much different from long-distance anaphora such as caki in Korean, ziji in Chinese, and zibun in Japanese with regard to the notion of the governing category. Then how can we solve this problem? What differentiates the two types of anaphora, facing the example (27).

Chomsky (1992) claims that (27) is obtained under the copy theory at LF. He states that two LF options provide

two sets of binding: himself in the base position with Bill and himself in the [Spec, CP] with John.[16] Adopting the two LF options, I argue that feature movement theory can account for the binding phenomenon. The [+Anaphoric] in the base position moves to the embedded T and is checked off by Bill, the one in the [Spec, CP] moves to the matrix T and is checked off by the matrix subject John as illustrated below.

(28) LF Option 1: [John wondered [$Bill_j$ saw which picture of $himself_j$]]

(29) LF Option 2: [$John_i$ wondered [*which picture of* $himself_i$ Bill saw *t*]

Further evidence in favor of the feature movement theory is provided by the following examples.

(30) [*which picture of* $himself_i$ did Mary say [$John_i$ thinks [they liked *t*]]](Aoun 1985, 66)

The anaphor is neither bound within the most embedded CP nor within the matrix CP. Rather it is bound to the intermediate subject John. In terms of the minimalist assumptions, the pied-piped wh-phrase raises to the matrix [Spec, CP], because the strong Q feature in the matrix C

[16] Refer to Chapter 3 for details.

attracts the wh-phrase to be checked off. We have a few LF options for interpretation, but the only LF option for convergence is the one in which the wh-phrase is in the most embedded [Spec, CP]. The [+Anaphoric] is checked off by John when the wh-phrase moves in the most embedded [Spec, CP]. The most embedded subject they, and the matrix subject Mary cannot block the sentence from converging, since one LF option which can properly check off the [+Anaphoric] feature is enough. Compare the following:

(31) which picture of himself$_i$ did John$_i$ say Mary saw

(32) *John said that Mary saw pictures of himself

In (32), the [+Anaphoric] cannot move all the way up to the matrix subject, because there occurs a feature mismatch with the embedded subject Mary. In (31), however, one of the LF options provides feature checking, which produces anaphor binding with the matrix subject John. Then the following sentence is expected to be acceptable.

(33) [*which picture of himself$_i$* did [John$_i$ say [*t''*[Mary thinks [*t'*[they liked *t*]]]

Sentences are usually awkward when they are more deeply embedded. However, (33) is at least better than (32). With

the notion of accessible SUBJECT and the i-within-i condition, (33) cannot be accounted for. According to our feature movement theory, the [+Anaphoric] is checked off by John, when the wh-phrase raises to the t''. From the position of the t'', the [+Anaphoric] moves to the matrix T head, [John T], where it is checked off by John.

In sum, under the feature movement theory, we can dispense with all the assumptions which make long-distance binding possible in Picture-DP constructions. The reflexive maintains the same morphological properties in all constructions whether it apparently shows long-distance binding or not. In terms of movement principles, we do not need special assumptions for extraction from the complex NP and CP, since features can adjoin to a head successively until they are checked off.

4.5. Orientation of the Antecedent

A central concern of this section is that orientation of the antecedent in anaphor binding is determined structurally by feature raising at LF. Let us examine first previous arguments put forward in literature.

Long-distance binding and subject orientation of an antecedent have been considered as an inseparable consequence of LF movement. According to Battistella (1987), Cole et al. (1990), Sung (1990), the X^0-movement of a reflexive to INFL

necessarily results in subject orientation of an antecedent, since the only c-commanding argument is the subject in [Spec, IP]. On the other hand, the XP reflexives are bound to the object and the subject, since they stay in situ or move to the VP adjoined position.

On the other hand, Li (1993) argues that the two characteristics of long-distance reflexivization, long-distance binding and subject-binding, should be treated as two separable consequences of a single LF operation. She notices that there is another type of local-binding reflexives such as zibun-zisin whose antecedent is only oriented to a subject. This is a counter example to the claim that local-binding anaphors should have no particular orientation with respect to their antecedent. The two types of local binding reflexives are illustrated as follows.

(34) Eric_i showed Cathy_j a picture of herself_j/himself_i (Li 1993;135)

(35) John_i-ga [Bill_j-ga Mike_k-ni zibun-$\text{zisin}_{*i/j/*k}$ -no
John-NOM Bill-NOM Mike-DAT $\text{zibun}_{i/j/*k}$ -GEN
koto-o hanasita to] itta
matter-ACC told that said
'John_i said that Bill_j told Mike_k about $\text{himself}_{*i/j/*k}$' (Li 1993; 136)

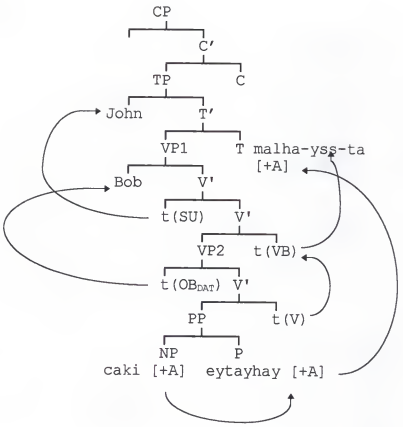
In (35), zibun-zisin behaves like himself in that it is locally bound. It is also subject-bound like the long-distance reflexive zibun. Based on this empirical evidence, Li (1993) suggests that the part of the language faculty responsible for long-distance binding be independent of the part that enforces subject-binding. It is claimed that subject-binding does not result from long-distance binding, since some local-binding reflexives show subject orientation of the antecedent. She does not provide a solution of what causes subject-binding. She only indicates that subject-binding is associated with a reflexive without any overt pronominal such as zibun and zibun-zisin.[17]

Against the above two positions, I propose that the subject orientation of the antecedent in long-distance anaphora results from an interaction between the anaphoric feature movement and the LF structure. Consider the following.

(36) John$_i$-i Bob$_j$-eykye caki$_{i/*j}$-eytayhay malha-yss-ta
John-NOM Bob-DAT self-about say-PAST-DEC
'John$_i$ told Bob$_j$ about himself$_{i/*j}$ '

[17] According to Li(1993), him- in himself is an overt pronominal.

(37)

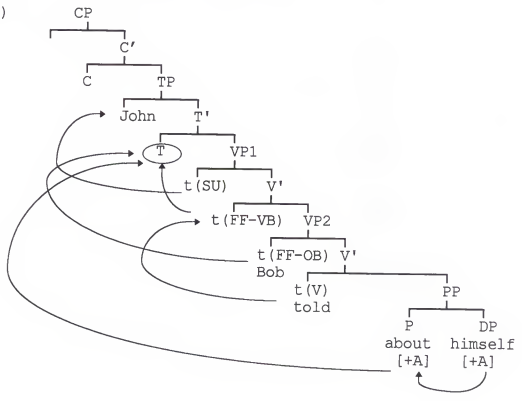


After overt SU, OB and V raising as it is assumed in structure of Korean, the [+Anaphoric] of caki moves to P and then to T at LF. Crossing t(V) and t(VB) does not violate the MLC, because only the head of a chain enters into the operation Attract/Move. At the head T, the [+Anaphoric] is checked off by the subject John. This analysis results in subject orientation of the antecedent in long-distance binding. By crossing the traces t(v) and t(VB), the [+Anaphoric] crosses over the object Bob in [Spec, VP]. There is no landing site for the feature to enter a checking

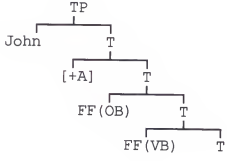
relation with the object Bob. Thus without additional assumptions, the LF structure itself supports subject orientation of the antecedent. Next let us consider the following English sentence which diplays non-orientation of the antecedent in local binding.

(38) $John_i$ told Bob_j about $himself_{i/j}$

(39)



(40)



In the case of English, the [+Anaphoric] moves to P and then moves to T. Crossing t(V) and t(FF-VB) does not violate the MLC due to the immobility of traces. FF(VB) and FF(OB) are adjoined to T by covert raising. The [+Anaphoric] is also adjoined to T, as shown in (40). The [+Anaphoric] thus constitutes a checking relation with two DPs, SU and FF(OB), on the T head. The [+Anaphoric] is checked off against FF(OB), which results in binding with the object Bob[18], and it can also be checked off by the subject John in [Spec, TP], which results in binding with the subject.[19] The LF feature movement analysis thus results in non-orientation of the antecedent in English: the anaphor can be bound to either the subject or the object.

So far we have seen that the so called long-distance anaphors are bound by the subject, while the local-binding anaphors can be bound by either subject or the object. I have argued that such subject orientation and non-orientation derive from an interaction between feature movement and the LF structure.

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[18] FF(OB) have the binding and control properties, because it establishes an A-chain. An A-position is analyzed as covering the position occupied by the formal features of SU and OB both before and after the adjunction operation (Chomsky 1995b).

[19] The checking configuration in (40) provides two possibilities of binding: The anaphor can be bound by either Bob or John in (38). It does not mean that the anaphor is bound by both Bob and John at the same time, which is impossible for interpretation.

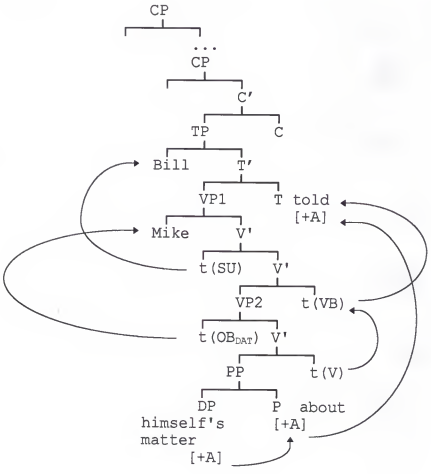
The remaining problem is why some local-binding anaphors such zibunzisin and cakicasin are oriented to the subject with regard to their antecedent. Li (1993) stipulates that a reflexive without any overt pronominal is subject bound. Katada (1991) simply uses three way classifications such as raising, local-raising and nonraising anaphors, and claims that subject orientation displayed by zibunzisin is reducible to local raising of a part of the reflexive zibun-. Yang (1991) defines the behavior of cakicasin as erratic, classfying the reflexive as emphatic form. Thus it is called into question whether an adequate explanation is possible in terms of the theory of feature raising . (35) is repeated in (41).

(41) John$_i$-ga [Bill$_j$-ga Mike$_k$-ni zibun-zisin$_{*i/j/*k}$ -no
John-NOM Bill-NOM Mike-DAT himself -GEN
koto-o hanasita to] itta
matter-ACC told that said
'John$_i$ said that Bill$_j$ told Mike$_k$ about himself$_{*i/j/*k}$'
(Li 1993; 136)

(42) John$_i$-i [Bill$_j$-i Mike$_k$-eykey cakicasin$_{*i/j/*k}$-uy
John-NOM Bill-NOM Mike-DAT himself-GEN
muncey-lul malha-yss-ta-ko sayngkakha-n-ta
matter-ACC tell-PAST-DEC-COMP think-PRES-DEC
'John$_i$ thinks that Bill$_j$ told Mike$_k$ about himself$_{*i/j/*k}$'

(41) and (42) illustrate that zibunzisin in Japanese and cakicasin in Korean are locally bound and subject oriented. If we find that there is something common in their LF structure, this should explain why the anaphors behave in a similar fashion. I assume that (41) and (42) have the following LF structure. The matrix clause is abbreviated. I use the English gloss for the structure.

(43)[20]



[20] The dots indicate abbreviation of the structure.

It is observed that both Korean and Japanese have the MSC. According to Chomsky (1995b) and others, the MSC induces overt V-raising, and overt V-raising can be evidence that the V-features are strong in these languages. The strong V-features attract the object DP in the outer Spec position of VP to check off its features. If these assumptions are on the right track, then both languages share the same LF structure as above, and the anaphors can cross over the object in the outer [Spec, VP] in order to adjoin to the embedded T head. Recall that traces are immobile so that the [+Anaphoric] can cross over the traces without violating the MLC. At the embedded T head, the [+Anaphoric] is checked off and eliminated, assuming that anaphors which induce local binding have the [+Anaphoric] and [-Interpretable] features.

I have shown that subject orientation of the local binding anaphors is not an exceptional phenomenon, but naturally results from an interaction between our feature raising analysis and the proposed LF structure. I conclude that orientation of the antecedent is not determined by the morphological status (i.e. the XP/X^0 distinction), by the types of binding (i.e. the long-distance and local binding) nor by the raising/nonraising distinction, but structurally determined by the anaphoric feature raising on a proposed LF

structure. Stipulations based on the dichotomy and classifications can be dispensed with.

4.6. Expletives and Anaphors

Expletives are usually defined as place-holders which lack a theta role. There are two kinds of expletives in English: "there" and "it". The former is characterized as lacking both Case and phi-features, though it has the categorial feature, and the latter as having both Case and phi-features, and D-feature.

The expletive there checks the strong D-feature of T, satisfying the EPP. But there lacks Case and phi-features so that the formal features of the associate raise covertly to T to check off Case and phi-features of T under the Last Resort condition. In the following examples, FF(ASSO) indicates formal features of the associate.

(44) a. There are *books*

b. LF: There-*FF(ASSO)* are *t(FF-ASSO)*

(45) a. there is *a book*

b. LF: there-*FF(ASSO)* is *t(FF-ASSO)*

The formal features of the associate books raise to T where they check off Case and phi-features of T. Agreement between T and the associate (books or book) is overtly

manifested in (44) and (45). This is evidence that the formal features of the associate covertly raise to the T head.

The raised features of the associate are claimed to bind and control as if they are in the surface subject position (Chomsky 1995b). However, in the case where the associate lacks a person feature, the formal features of the associate cannot bind the anaphor, allowing the anaphoric feature to move across the clause boundary. In this case, the expletive constructions show apparent long-distance binding phenomena. But the anaphor in these constructions actually maintains the same morphological properties as a local binding anaphor, exactly like the cases of Picture-DP constructions. Let us consider the following expletive-associate constructions.

(46) a. There arrived *three men*$_i$ without identifying themselves$_i$ (Chomsky 1995a, 32)

b. There-*FF(ASSO)*-[+A] arrived *t(FF-ASSO)* without identifying t[+A]

(47) a. They$_i$ think that there are *pictures of each other*$_i$ hanging in the room

b. They-[+A] think that there-*FF(ASSO*[+A]*)* are *t(FF-ASSO)* hanging in the room

(48) a. They think that there are *expensive pictures* hanging in each other's room (Kitagawa 1995, 140)

b. They-[+A] think that there-*FF(ASSO)* are *t(FF-ASSO)* hanging in t[+A]' room

(49) a. They think that expensive pictures are hanging in each other's rooms [21]

In (46b), the formal features of three men raise to the T head to check Case and phi-features of T. The [+Anaphoric] also raises to the T head and it is properly checked off by the formal features of three men. (47b) is expected to be grammatical, since the formal features of pictures of each other raise to the embedded T to check off Case and phi-features of the T. The [+Anaphoric] which is pied piped within the FF(Associate) now moves to the matrix T, where it is checked off by the matrix subject they. In (48b), there are two ways for determining which is the associate. If there is used as a pure expletive, FF(expensive pictures) should move to the embedded T. The [+Anaphoric] moves out of PP by head adjunction and then adjoins to the embedded T. In the embedded T position, however, the [+Anaphoric] cannot enter a checking relation

[21] Kitagawa (1995) treats this sentence as ungrammatical. According to native English speakers (John Bro, Dr. Gary Miller, Dr. Caroline Wiltshire, and others), it is considered as acceptable.

with any DP or FF(DP), since the DP expensive pictures has no "person feature".[22] Thus the [+Anaphoric] moves to the matrix T where it is checked off by the matrix subject. In another case,[23] if there is used as a locative expression, it should be associated with the locative phrase in each other's room. Then the formal features of the locative phrase adjoin to the embedded T. The [+Anaphoric] feature embedded in FF(locative phrase) now adjoins to the matrix T where it is checked off by the matrix subject. Hence, either way the anaphor is bound by the matrix subject. (49) is naturally expected to be grammatical, since the DP expensive pictures does not block the [+Anaphoric] from moving across the clause due to the lack of a person feature.

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[22] In the case when there is no person feature in a DP, the [+Anaphoric] cannot enter into a checking relation with the DP, though it forms the checking configuration. Thus the [+Anaphoric] moves up to the position where it can be checked off. See the following example.

(i) They realized that the fire damaged pictures of each other
(ii)*They realized that Mary likes pictures of each other

A native English speaker judges (i) as marginally acceptable, (ii) as totally ungrammatical (Dr. Gary Miller and Dr. Caroline Wiltshire consider (i) as completely normal, and (ii) as ungrammatical). In (i), the [+Anaphoric] cannot be checked off by the embedded subject the fire due to the lack of person feature. It thus moves one clause up to be checked off by the matrix subject.

[23] Kitagawa (1995) analyzes there as a locative expression in her example.

The expletive it, on the other hand, has all of the formal features such as a categorial feature, Case feature, and phi-features, but it does not have a theta role. As suggested in Chomsky (1995b, 365), I assume that the formal features of the extraposed associate raise to the expletive it , deleting it to satisfy FI.

(50) a. It is likely *[$_{CP}$ that she will win]*

b. LF: *FF(CP)* is likely *t(FF-CP)*

Based on this assumption, let us consider how the anaphoric feature moves in the expletive it constructions.

(51) a. They$_i$ think that it is likely *that pictures of each other$_i$ are on sale*.

b. They-[+A] think that it-*FF(CP)* is likely *t(FF-CP)*

(52) a. We$_i$ said that they$_j$ think that it is likely *that pictures of each other$_{*i/j}$ are on sale* (Lasnik and Uriagreka 1988, 60)

b. We said that they-[+A] think that it-*FF(CP)* is likely *t(FF-CP)*

(53) a.*They$_i$ think that it surprised each other$_i$ *that Bill won* (Lasnik and Uriagreka 1988, 60)

b. They think that it-*FF(CP)*-[+A] surprised t[+A] *t(FF-CP)*

In the above sentences, the expletive it is associated with a CP. As we assumed, the formal features of the CP adjoin to the embedded T in the above three cases. In (51), the [+Anaphoric] embedded in FF(CP) cannot be checked off at this position due to the lack of a DP, hence it moves up to the matrix T where it is checked off by the matrix subject they. In (52), the [+Anaphoric] within FF(CP) moves to the intermediate T where it is checked off by the subject they. Further movement to the matrix T is prohibited, since the [+Anaphoric] is [-Interpretable] so that is checked off and eliminated by the intermediate subject, hence invisible at LF. The sentence is thus correctly predicted by the feature movement analysis. In (53), FF(CP) raises to the embedded T first. Next the [+Anaphoric] undergoes the head adjunction to the embedded T. At the embedded T, the [+Anaphoric] enters a checking relation with FF(Bill) which is embedded in FF(CP). The feature mismatch between the [+Anaphoric] and FF(Bill) cause the sentence to crash: the phi-features that the [+Anaphoric] carries along do not match with those of Bill. The ungrammaticality of (53) is thus accounted for in terms of the feature movement theory.

Like the expletive there constructions, the expletive it constructions also show that the associate(CP) covertly raises to the T head. Compare (51) and (53) above. If the associated CP does not raise to the T head, (53) would be incorrectly ruled in by feature raising analysis. Furthermore, the local binding anaphor maintains its morphological properties in these constructions, although it is apparently long-distance bound. Otherwise, the anaphor in (52) could incorrectly be bound to the matrix subject we.

4.7. The [+Anaphoric] Feature Adjunction as an A-movement

A case of "improper movement" is barred by the requirement that the A'-bound trace must be A-free in the domain of the head of its chain, which is a subcase of Condition C of the binding theory (Chomsky 1986b). In this section, I would like to argue that successive adjunction of the anaphoric feature is licit in terms of excluding "improper movement".

We have shown that adjunction of the [+Anaphoric] feature observes the MLC by the successive head adjunction. Is the movement, however, legitimate, not formulating a case of "improper movement"? Li (1993) actually uses the notion of "improper movement" to block long-distance binding in English. She assumes that both long-distance binding and local binding can be accounted for by uniformly moving X^0 regardless of the

actual form of the reflexive. In her system, successive X^0 movement always satisfies the ECP, but the notion of "improper movement" blocks long-extraction in local binding cases.

In our system, we uniformly move the anaphoric feature, which induces successive head adjunction. The contrast between long-distance binding and local binding is attributed to morphological properties: the anaphoric feature in long-distance binding is [+Interpretable] and the one in local binding is [-Interpretable]. Then one remaining problem is whether such movement driven by morphological properties is legitimate in terms of excluding "improper movement".

First of all, let us examine what type of movements the anaphoric feature raising constitutes with regard to properties of positions. Chomsky (1995a&b) defines A-positions as those narrowly L-related to a head H.[24] He argues that all sublabels of HP, H itself, features of H, and any feature adjoined to H have A-position properties.

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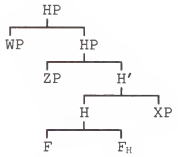
[24] According to Chomsky (1992, 40), a position is L-related if it is in a local domain to an L-feature, i.e., in the internal or checking domain of a head with an L-feature. L-features are features of a lexical item. Within the checking domain, the nonadjoined position, that is, the Spec position is called narrowly L-related, but the adjoined position is called broadly L-related. A structural position that is narrowly L-related has the basic properties of A-positions, while the one that is not L-related has the properties of A'-position. The broadly L-related position is debatable between A- and A'-position properties.

(54)



Let us suppose that H is a lexical item in the above configuration. F_H is features of the category HP, F is a feature adjoined to the head H, and WP is adjoined to the category HP. ZP, F_H, F, and H itself are narrowly L-related to the head H, but WP is broadly L-related to the head H. The positions which are narrowly L-related have A-position properties: ZP, F_H, F, and H. The position, WP, which is broadly L-related is ambiguous between A- and A'-properties especially in the theory of scrambling.

Based on such a definition, we understand that covert adjunction of the features of SU and OB as well as overt substitution of SU and OB establish A-chains. As is discussed in the expletive constructions, the formal features (FF) of a lexical item (LI) thus have the binding and control properties which are characterized as having A-position properties.

According to the definition of an A-position, adjunction of the [+Anaphoric] feature in Korean establishes an A-chain, satisfying the requirements of "proper movement". The [+Anaphoric] feature inside VP raises to the embedded T, C,

and then the matrix T.[25] The base position of the anaphor is an A-position, since it is in a local relation with the lexical item V, and hence is narrowly L-related with the head V. The embedded T is also an A-position due to V-raising. The embedded C turns into an A-position, since V overtly raises to C in order to support the affixal complementizer in Korean.[26] The same is true of the matrix T. Thus adjunction of the [+Anaphoric] feature in Korean does not undergo "improper movement", analyzed as A-movement.

Requirements of "proper movement" are also satisfied in English with respect to the [+Anaphoric] feature raising. The base position of the anaphor is an A-position, since it is narrowly L-related with the V head. The T head is an A-position due to the V-features raised by covert operation. Unlike Korean, V does not raise to C in English. The problem arises in apparent long-distance binding cases such as Picture-DP constructions,[27] because the anaphor should pass through the C head which is analyzed as an A'-position. Movement from an A-position (base position) to an A'-position (the C head) and then to an A-position (the matrix T head) constitutes an instance of "improper movement". The

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[25] Refer to Section 4.3. for details.

[26] Kaplan and Whitman (1995) argue that the verb is required to raise to C to support the affixal complementizer in Korean.

[27] Refer to Section 4.4.

[+Anaphoric] feature raising through the C head should have been blocked by the improper movement, if binding is analyzed as a result of A-movement. However, this is not the case. The anaphoric feature raising across the embedded clause in Picture-DP constructions is obligatory by the Last Resort principle, in cases where neither Picture-DP itself nor the embedded subject provides a referential DP to check off the [+Anaphoric] feature. Then how can we ensure convergence in terms of both requirements of "proper movement" and those of anaphoric feature checking?

At this point, I assume that the [+Anaphoric] carries along phi-features of the anaphor. This is evidenced by the feature mismatch between the "Checkee", the [+Anaphoric], and the "Checker", the referential DP.

(55) a.*Bill loves each other
b. They love each other
(56) a. *Mary loves himself
b. Mary loves herself

(55a) is an example of number mismatch, while (56a) shows gender mismatch, both causing the sentences to crash. This can be evidence that the [+Anaphoric] carries along phi-features to be checked off by the referential DP. Phi-features are lexical features by definition. Thus when the

[+Anaphoric] adjoins to the C head in Picture-DP constructions, the adjoined anaphoric feature itself turns the C head into A-position properties due to the phi-features carried along with the [+Anaphoric]. Hence, the anaphoric feature raising is uniformly analyzed as A-movement in local binding cases in English.

4.8. Conclusion

I have shown that the contrast between long-distance binding and local binding does not result from the morphological status of anaphors, but from the anaphoric feature raising driven by morphological properties. It is argued that Picture-DP constructions and expletive constructions which appear to allow long-distance binding actually have local binding, since the anaphor maintains the same morphological properties as in the other constructions which require strict locality. The contrast between subject orientation and non- orientation with respect to the antecedent is also naturally induced by the feature raising and the proposed LF structure. Such anaphoric feature adjunction is characterized as A-movement both in Korean and English.

The anaphoric feature movement satisfies the MLC, the Uniformity Condition, and the Last Resort, which are constraints of the operation Attract/Move in the Minimalist

assumptions. It also satisfies requirements of movement concerning properties of positions, not being excluded by an instance of "improper movement". Hence, as far as movement rules are concerned, there is no need to employ additional assumptions to account for binding phenomena within our proposal.

Consequently, Condition A may be dispensable, if our approach based on feature raising is on the right track. The anaphor recovers its reference by the requirements to satisfy its morphological properties which are the very driving force for all other movements. The effects of Condition A thus follow from the theory of feature raising within the Minimalist Program.

CHAPTER 5
THE BLOCKING EFFECT

5.1. Introduction

Long-distance binding of an anaphor is blocked in cases where intermediate subjects do not agree in features with the anaphor, which is called "the blocking effect." The blocking effect has been an important issue in the LF movement theory, since it provides evidence for successive cyclic movement of an anaphor and the subsequent subject orientation effect. However, not all languages with long-distance anaphors are subject to this effect: Italian, Icelandic, Korean, and others lack such an effect. For this reason, the blocking effect has been discussed at length by Battistella (1989), Battistella and Xu (1990), Cole et al. (1990, 1993), Sung (1990), Huang and Tang (1991), Hermon (1992), Cole and Wang (1996), and others. Two claims exist: on the one hand, it is claimed that the blocking effect takes place due to the feature mismatch between an anaphor and its binder, and on the other hand, it is claimed that the blocking effect results

from subject-Infl agreement.[1] The former is based on the existence of non-c-commanding binders contained in complex DPs, sentential subjects, and relative clauses (See Huang and Tang 1991), because the non-c-commanding binders do not share agreement features with Infl. The latter solves such non-c-commanding cases with feature percolation, inducing agreement between the anaphor (or its trace) and the features of the binder which are percolated up to the c-commanding position (See Battistella 1989).

Critically reviewing the previous arguments, I shall argue that the blocking effect derives from morphological properties of an anaphor and general checking procedure of features such as [+A, -I], [+A, +I],[2] and phi-features. This chapter is organized as follows. Section 1 provides an overall summary of previous studies. Section 2 critically reviews Cole, Hermon, and Sung (1993). Section 3 discusses the recent proposal by Cole and Wang (1996). In Section 4, Korean facts with regard to the blocking effect are presented. In Section 5, it is proposed that the blocking effect results from morphological properties of an anaphor and feature

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[1] The actual structure is Spec-Head agreement between subject and Infl to which the anaphor is adjoined.

[2] [+A]=[+Anaphoric]
[-I]=[-Interpretable]
[+I]=[+Interpretable]

checking at LF. In the subsections, caki (Korean), himself (English), casin (Korean), and propria (Italian) are analyzed in terms of feature checking. In Section 6, I argue that a separation between the antecedent and the blocker is also accounted for by feature checking. Finally I summarize the consequences of the feature checking analysis in Section 7.

5.2. Proposal by Cole et al. (1993)

Cole et al. (1993) classify two language groups: one in which long-distance reflexives are blocked when an intermediate subject differs in phi-features from a lower subject, and the other one in which long-distance reflexives are not blocked in spite of differences in phi-features between a lower subject and an intermediate subject. They observe that Chinese and Korean belong to the former group, while languages like Italian and Icelandic belong to the latter one. They claim that such a typological difference results from the assumption that Italian overtly instantiates phi-features on Infl and Chinese manifests no overt phi-features on Infl. They argue that the given assumptions on properties of Infl and the Feature Percolation Principles (FPP)[3] work together to explain differences in the blocking

[3] Feature Percolation Principles (FPP) (=(1) in Cole et al. 1993)

effect. Consider their examples from each group: one from Chinese and the other from Italian, respectively. Their analysis is based on a head movement analysis of long-distance reflexives.

(1) a. [$_1$Zhangsan$_i$ renwei [$_2$wo$_j$ zhidao [$_3$Wangwu$_k$ xihuan

Zhangsan think I know Wangwu like

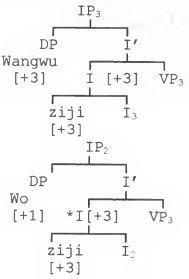
ziji$_{*i/*j/k}$]]]

self

'Zhangsan$_i$ thinks that I$_j$ know that Wangwu$_k$ likes

himself$_{*i/*j/k}$' (=(5) in Cole et al.(1993))

b. Structure of IP in (1a)[4]



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i) The features of the mother node and the features of the daughter nodes will be identical.

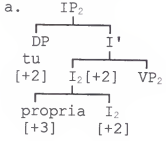
ii) If the features of the daughter nodes conflict, the mother node will have the features of the head node.

[4] The detailed tree is abbreviated due to space, showing only the structure of IP in each embedded sentence in (1a).

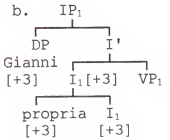
In (1), when ziji adjoins to I_3, the feature [+3] of the reflexive percolates up to I_3, because Infl manifests no overt phi-features in Chinese. Blocking does not occur, since the phi-features of I_3 and the Spec of IP_3 do not differ under Spec-Head agreement. Further movement is not licensed due to the blocking effect, since the feature [+3][5] percolated up to I_2 differs in phi-features with the DP wo ('I' [+1]) in [Spec, IP_2]. Now let us consider the Italian cases.

(2) [$_1$Gianni$_i$ suppone [$_2$che tu$_j$ sia innamorato della
Gianni suppose that you are in love with
propria$_{i/j}$ moglie]]
self's wife
'Gianni$_i$ supposes that you$_j$ are in love with self$_{i/j}$'s wife' (= (3) in Cole et al. 1993)

(3) Structure of IP in (2)

a.


[5] [+3] indicates a third person, [+2], a second person, and [+1], a first person.



According to Cole et al. (1993), in Italian, Infl is base-generated with phi-features. Feature percolation is constrained by the FPP, which states that the features of the head percolate up to the mother node, when there are conflicts among the features of the daughters. I_2 has the base-generated [+2] feature, and thus the feature [+3] of propria from the I_2 adjunction site cannot percolate up to I_2. As a result, the blocking effect does not take place in IP_2. Thus the reflexive propria can move to I_1 which is base-generated with [+3]. In I_1, the features of Infl and those of propria match, which results in binding between the DP in [Spec, IP_1] and the anaphor.

Based on the Chinese and Italian facts discussed so far, Cole, Hermon, and Sung (1993) argue that the crucial property for determining whether the blocking effect occurs or not is the presence or absence of phi-features on Infl rather than the presence or absence of phi-features on the reflexive form itself. They provide empirical evidence across languages and within a single language: first, although both ziji and

propria have the same morphological properties by taking any antecedent, the blocking effect is present only for ziji, not for propria. Second, within Italian, although se and propria have different morphological properties, se taking a third person antecedent and propria taking any antecedent, both show no blocking effect.

Cole, Hermon and Sung (1993) can be criticized in respect to the following points. First, based on the split-Infl hypothesis (Pollock 1989, Chomsky 1989), Chomsky (1995b) argues that Agr itself has no phi-features and an independent Case-assigning feature. He claims that Agr is motivated only structurally to check features of subject and object and to provide a position for overt object-raising. He further states that if any other functional categories replace the function of Agr, Agr can be eliminated. In our earlier feature raising analysis of anaphora, we actually eliminated Agr for this reason, making T and V to do the function of Agr for feature checking. In this respect, whether Agr is base-generated with phi-features or not does not constitute a valid ground for the presence or absence of the blocking effect.

Second, Korean is a clear case against their claim which classifies anaphora in accordance with properties of Agr. In Korean, both types of reflexives exist: Casin ('self') undergoes the blocking effect like Chinese ziji, while caki

('self') is not sensitive to the blocking effect like Italian se and Icelandic sig. It is unreasonable to assume that Infl is base-generated with phi-features for one reflexive and it is not so for another reflexive within a single language.

5.3. Cole and Wang (1996)

Based on the head movement analysis and split-Infl hypothesis (Pollock 1989), Cole and Wang (1996) recently argue that the conditions on antecedence and the conditions on blocker[6] are disjoint in Chinese: c-command is a sufficient condition for antecedence, but blocking requires an agreement relationship. They claim that the blocking effect is due to agreement checking between Agr and its specifier, not other heads and their sepcifiers. Thus only the DP in [Spec, AgrP] can produce the blocking effect. As evidence for their claim, they show that although ba and bei nominals[7] are possible antecedents, they do not act as blockers. Consider their examples below.

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[6] Cloe and Wang (1996) use "blocker" to indicate the antecedent which induces the blocking effect.

[7] Ba and bei nominals refer to the NPs following ba or bei. Ba ia a preverbal object marker, and bei is a passive morpheme.

(4) Wangwu$_i$ shuo ni$_j$ zengsong gei wo$_k$
Wangwu say you give to me
yipian guanyu ziji$_{*i/j/*k}$ de wenzhang
one about self DE article
'Wangwu$_i$ says that you$_j$ gave me$_k$ an article about *him$_i$/yourself$_j$/*me$_k$.' (=(3b) in Cole and Wang (1996)

(5) Zhangsan$_i$ yiwei wo$_j$ hui ba ni$_k$ ling hui
Zhangsan think I will BA you lead back
ziji$_{*i/j/k}$ de jia
self DE home
'Zhangsan$_i$ thought I$_j$ would take you$_k$ back to *his$_i$/ my$_j$/your$_k$ home' (=(4a) in Cole and Wang (1996)

(4) does not have ba or bei nominals, and ziji is subject oriented within the subordinate clause. When ba or bei nominals are present as in (5), ziji is not subject oriented, taking its antecedent from both ba or bei nominals and the subject. From (4) and (5), the blocking effect occurs by the subject (i.e. ni ('you') in (4) and wo ('I') in (5)), not by all the c-commanding DPs including ba or bei nominals. According to Cole and Wang (1996), this is because the blocking effect is based on agreement checking between the Agr head and its specifier, and thereby only the subject in [Spec,

AgrP], rather than all c-commanding DPs, can contribute for the blocker.

The blocking effect has been proposed as a subeffect of Condition A in the sense that it is mentioned with data which basically satisfy Condition A. For example, as seen in (1) in section 5.2, the anaphor is bound, satisfying Condition A, but successive binding of the anaphor is blocked due to a mismatch in phi-features such as person, number, and gender. In Chapter 4, our main claim is that Condition A reduces to feature checking. If it is on the right track, the subeffect of Condition A, i.e., the blocking effect, must also reduce to feature checking. The claim that the blocking effect derives from agreement checking gives positive evidence for the simplification of the binding theory in which Condition A and the blocking effect reduce to feature checking.[8] Consider the following.[9]

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[8] Agreement checking is carried out by feature checking.

[9] As Dr. Gary Miller commented, Cole et al. (1993), Cole and Wang (1996) and others take these sentences for granted. They deal with sentences which already satisfy Condition A to account for the blocking effect. If a sentence cannot satisfy Condition A, the blocking effect is not mentioned. The blocking effect is thus found only in a nonconvergent derivation within convergent sentences of long-distance anaphora. My point of view is different from them in that the blocking effect may not follow satisfaction of Condition A, but must follow from feature checking. Thus all nonconvergent derivations, whether in the first cycle or

(6) a. John$_i$ likes himself$_i$

b. *Mary$_i$ likes himself$_j$

c. *They$_i$ like himself$_j$

(7) a. John$_i$-i caki$_i$-lul piphanha-yss-ta

John-NOM self-ACC criticize-PAST-DEC

'John$_i$ criticized himself$_i$'

b. *Nay$_i$-ka caki$_j$-lul piphanha-yss-ta

I-NOM self-ACC criticize-PAST-DEC

'*I$_i$ criticized himself$_j$'

c. *Kutul$_i$-i caki$_j$-lul piphanha-yss-ta

they-NOM self-ACC criticize-PAST-DEC

'*They$_i$ criticized himself$_j$'

The examples (6b&c-7b&c) constitute a Condition A violation, since the anaphor is not bound to a referential NP. From the definition of "bound" (Chomsky 1981: 184), the anaphor is not bound, because it is not coindexed with a c-commanding NP. Why it is not coindexed derives from a mismatch in phi-features between the two NPs. This is the same reason that the blocking effect occurs in (1) in section 5.2. For instance, in (1), though Condition A is satisfied in the first

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in the second cycle, should constitute the blocking effect. As a result, the blocking effect need not be posited as a unique effect, reducing to feature checking.

cycle, successive binding is blocked due to a mismatch in phi-features in the next cycle. Thus, feature checking can deal with both the cases of Condition A violation, as in (6b&c-7b&c) and the cases of the blocking effect, as in (1). The so-called blocking effect thus can be treated as a nonconvergence of a derivation as a result of feature checking. If it takes place in the first cycle as in (6b&c-7b&c), the sentence crashes. If it occurs in the second cycle as in (1), the sentence converges, since there is at least one convergent derivation in the first cycle. In what follows, I will show how the blocking effect is accounted for in terms of feature checking, by analyzing both the long-distance and local-binding anaphors.

5.4. Observations on Korean

Both caki and casin in Korean have long-distance binding phenomena as below.

(8) $John_i$-i $Mary_j$-ka $casin_{i/j}$-ul cohaha-n-ta-ko
John-NOM Mary-NOM self-ACC like-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'$John_i$ thinks that $Mary_j$ likes $himself_i$/$herself_j$'

(9) John$_i$-i Mary$_j$-ka caki$_{i/j}$-lul cohaha-n-ta-ko
John-NOM you-NOM self-ACC like-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'John$_i$ thinks that Mary$_j$ likes himself$_i$/herself$_j$'

According to our proposal in Chapter 4, both casin and caki have [+Anaphoric] and [+Interpretable] features, exhibiting long-distance binding phenomena as in (8) and (9). What differentiates them from each other, however, is that casin shows the blocking effect, while caki shows no such effect as illustrated in (10) and (11).

(10) John$_i$-i ne$_j$-ka casin$_{*i/j}$-ul cohaha-n-ta-ko
John-NOM you-NOM self-ACC like-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'John$_i$ thinks that you$_j$ like self$_{*i/j}$'

(11) John$_i$-i ne$_j$-ka caki$_{i/*j}$-lul cohaha-n-ta-ko
John-NOM you-NOM self-ACC like-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'John$_i$ thinks that you$_j$ like self$_{i/*j}$'

Casin in (10) shows the blocking effect like Chinese ziji, but caki in (11) does not, like Italian se. Where do such differences come from? Suppose that the differences lie in properties of Infl, following Cole, Hermon and Sung (1993). Then, we have to posit two different Infls within a single language, one for the presence of the blocking effect and the other for the absence of the same effect, which is an undesirable result. Thus I suggest that differences between these two anaphors are morphological properties: Casin lacks phi-features, referring to any person such as a first, second, or third person DP, while caki is inherently specified for a third person. Consider the following.

(12) ne$_i$-ka casin$_i$-ul salangha-n-ta
you-NOM self-ACC love-PRES-DEC
'You$_i$ like yourself$_i$'

(13) nay$_i$-ka casin$_i$-ul salngha-n-ta
I-NOM self-ACC love-PRES-DEC
'I$_i$ like myself$_i$'

(14) Ku$_i$-ka casin$_i$-ul salangha-n-ta
he-NOM self-ACC love-PRES-DEC
'He$_i$ likes himself$_i$'

From these observations, it will be argued in the following section that the blocking effect does not derive from properties of Infl, or agreement checking exclusively on Agr, but from different morphological properties of an anaphor and general feature checking procedure.

5.5. Proposal Based on Feature Checking

In the previous section, we have seen the presence and absence of the blocking effect in long-distance anaphora in a single language, Korean. Based on this fact, I shall argue that the blocking effect is not a unique phenomenon which distinguishes one group of long-distance anaphora from another group of long-distance anaphora, but a phenomenon which can appear in the process of feature checking both in long-distance and local anaphora. The presence of the blocking effect, hence, derives from morphological properties of an anaphor, not from properties of Infl as proposed in Cole et al. (1993). The blocking effect does not have to utilize Agr as in Cole and Wang (1996), but derives from the usual feature checking process, when a checking relation is formulated.

Before going into a detailed analysis, I review terms from Chomsky (1995b). A checking relation is distinguished from a checking configuration, and is defined as follows:

(15) Feature F′ of FF[F] is in a checking configuration with f; and F′ is in a checking relation with f if, furthermore, F′ and f match. (Chomsky 1995b, 310)

"Match" is defined as follows:

(16) phi-features match if they are identical (Chomsky 1995b, 309)

Mismatch is distinguished from nonmatch, and defined as follows:

(17) a. Mismatch of features cancels the derivation.[10]
b. Nonmatch of features does not cancel the derivation, since there is no feature conflicts in nonmatch.[11]

With these definitions in mind, I shall analyzes caki, himself, casin, and propria in the following subsections.

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[10] According to Chomsky (1995b), cancellation of a derivation under mismatch does not mean nonconvergence of a derivation. Though a derivation is canceled under mismatch, there could be a different convergent derivation.

[11] Chomsky (1995b) takes an example to distinguish mismatch from nonmatch: the Case feature [Accusative] mismatches F′=[assign Nominative], but fails to match F′ = I of a raising infinitival, which assigns no Case.

5.5.1. Caki

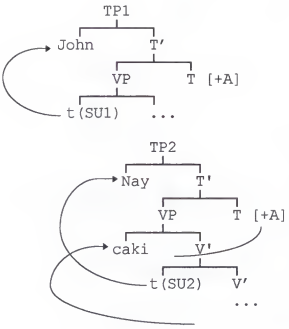
As I mentioned, caki is inherently third person, referring to only a third person DP. Caki does not show the so-called blocking effect, as illustrated in (18a), and requires a phi-feature match for a convergent derivation as in (18b).

(18) a. John$_i$-i nay$_j$-ka caki$_{i/*j}$-lul cohaha-n-ta-ko
John-NOM I-NOM self-ACC like-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'John$_i$ thinks that I$_j$ like himself$_{i/*j}$'

b. *Nay-ka caki-lul cohaha-n-ta
I-NOM self-ACC like-PTRES-DEC
'*I like himself'

The structure of (18a) is drawn below. Irrelevant details are omitted. The dots indicate abbreviation of the structure.

(19)



Based on the proposed structure of Korean in Chapter 2, caki moves to the outer Spec position of VP, where its Case and phi-features are checked off. The unchecked feature [+Anaphoric] along with phi-features continues to move up to the embedded T and then to the matrix T. At the embedded T, the embedded subject I [+1] causes a mismatch between features, since the inherent person feature of the anaphor is [+3]. If movement stops here, the sentence crashes as in (18b). As stated in (17), mismatch does not cancel a derivation, if there is an alternative way to converge. The anaphoric feature [+A, +I] makes further computation possible in (18a). Thus the anaphoric feature raises to the matrix T

along with phi-features. At the matrix T, the anaphoric feature is checked off without any mismatch between features: the matrix subject [+3] matches with the inherent third person feature pied-piped within the anaphoric feature. In the course of the derivation, at least one converging interpretation is provided, satisfying FI (Chomsky 1986). Thus feature checking provides long-distance binding, producing convergent and nonconvergent derivations.

A nonconvergent derivation could create the blocking effect even with caki. See the following.

(20) Nay$_i$-ka John$_j$-i caki$_{*i/j}$-lul cohaha-n-ta-ko
I-NOM John-NOM self-ACC like-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'I$_i$ think that John$_j$ likes himself$_{*i/j}$'

Association with the matrix subject Nay ([+1]) cannot converge, due to mismatch in phi-features, showing the blocking effect in (20).

The Number feature, [± plural(PL)], also plays a role in blocking as illustrated below.

(21) a. kutul$_i$-i John$_j$-i caki$_{*i/j}$-lul miweha-n-ta-ko
they-NOM John-NOM self-PL-ACC hate-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'They$_i$ think that John$_j$ hates himself$_{*i/j}$'

b. John$_i$-i kutul$_j$-i caki$_{i/*j}$-lul miweha-n-ta-ko
John-NOM they-NOM self-PL-ACC hate-PRES-DEC-COMP
sayngkakha-n-ta
think-PRES-DEC
'John$_i$ thinks that they$_j$ hate himself$_{i/*j}$'

Caki should agree with the number feature, not just with the Person feature. In (21a), caki is bound by the embedded subject, but not by the matrix subject. Mismatch in the number feature cancels a derivation with an association of the matrix subject and the anaphor, yielding the apparent blocking effect. In (21b), caki is not bound by the embedded subject, but by the matrix subject. Mismatch in phi-features cancels a derivation which associates the anaphor and the embedded subject, but [+A, +I] makes further computation possible in the next cycle, in which a convergent derivation is produced with the matrix subject anteceding the anaphor. From this analysis, I have shown that even within a third person anaphor caki, there exists the blocking effect. Thus I argue that the

blocking effect is not a unique phenomenon in a certain anaphors such as ziji and casin, but naturally obtained from feature checking.

In the presence of a non-person DP, caki can be bound across the intermediate non-person DP to the matrix DP.

(22) John$_i$-i pul-i caki$_i$-uy sacin-ul
John-NOM fire-NOM self-GEN picture-ACC
taewu-ess-ta-ko alkeytoy-ess-ta
burn-PAST-DEC-COMP come to know-PAST-DEC
'John$_i$ came to know that the fire burnt self$_i$'s picture'

The intermediate subject pul ('the fire') in (22) constitutes a case of nonmatch in phi-features, because it is not a human DP. As stated in (17), nonmatch does not cancel a derivation. As computation continues, the anaphoric feature raises to the matrix T, where it is checked off by the matrix subject John. Thus the sentence provides evidence that nonmatch in phi-features does not lead to the blocking effect. Our observations discussed so far are summarized as follows. SU1 indicates the matrix subject, and SU2, the embedded

subject.[12] Caki is positioned hierarchically lower than SU2.

(23) Long-distance Binding Allowed

	SU1	SU2	
a.	$John_i$	$Bill_j$	$caki_{i/j}$
b.	$John_i$	you_j	$caki_{i/*j}$
c.	$John_i$	$they_j$	$caki_{i/*j}$
d.	$John_i$	$fire_j$	$caki_{i/*j}$

(24) Long-distance Binding Blocked

	SU1	SU2	
a.	$they_i$	$John_j$	$caki_{*i/j}$
b.	you_i	$John_j$	$caki_{*i/j}$

The sentence converges by long-distance binding with the matrix subject in (23a). (23b&c) show that feature mismatch cancels a derivation, but a sentence converges if there is at least one convergent derivation. Nonmatch in (23d) does not cancel derivation, but allows long-distance binding. Blocking occurs in (24), when there is a mismatch in features and there is no other alternative for further computation: [+A, +I] allows the anaphoric feature to be accessible for further

[12] Refer to the tree in (19).

computation in (24), but there is no DP matching in phi-features ahead of the matrix subject they or you.

5.5.2. Himself

Let us consider himself.

(25) $John_i$ says that $Bill_j$ likes $himself_{*i/j}$

(26) *$John_i$ says that you_j like $himself_{*i/*j}$

(27) $they_i$ say that $John_j$ likes $himself_{*i/j}$

(28) $John_i$ says that the fire burned a picture of $himself_i$

As we have proposed in the previous chapter, himself has [+Anaphoric] which is [-interpretable]. This feature is checked off by a referential DP and eliminated at LF. Another feature which raises along with [+A, -I] is the person feature [+3]. (25-27) show that [+A, -I] essentially block further computation, producing strict local binding phenomena. Mismatch in phi-features in (26) causes the sentence to crash. Nonmatch in phi-features in (28) yields long-distance binding by the local binding anaphor.

The above observations are summarized as follows. SU1 indicates the matrix subject, and SU2, the embedded subject. Himself is positioned hierarchically lower than SU2.

(29) Local-Binding Allowed

	SU1	SU2	
a.	$John_i$	$Bill_j$	$himself_{*i/j}$
b.	$They_i$	$John_j$	$himself_{*i/j}$

(30) Apparent Long-distance binding allowed

SU1	SU2	
$John_i$	$fire_j$	$himself_{i/*j}$

(31) Local-binding Blocked

	SU1	SU2	
a.	$John_i$	you_j	$himself_{*i/*j}$
b.	$John_i$	$they_j$	$himself_{*i/*j}$

In (29), [+A, -I] blocks long-distance binding of himself. In (30), nonmatch in phi-features allows an apparent long-distance binding. In (31), mismatch in phi-features blocks the local binding, causing the sentence to crash. When mismatch occurs, if there is an alternative for a convergent derivation, the sentence could still converges. However, in (31), there is no alternative derivation due to the anaphoric feature [+A, -I], which should be eliminated at the first cycle. Thus this can be evidence that phi-features play a role for the blocking and nonblocking effect in the local-binding anaphora: mismatch causes the blocking effect, and the nonmatch causes the nonblocking effect. When phi-features

match with an antecedent as in (29a), the blocking effect is attributed to [+A, -I]. We may, therefore, conclude that the blocking effect derives from checking both the phi-features and the anaphoric features such as [+A, -I] and [+A, +I].

5.5.3. Casin

Next is the typical case in which the blocking effect is present. As shown before, casin lacks phi-features, taking any antecedent in the first cycle.

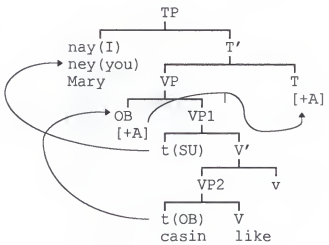
(32) [John$_i$-i [Mary$_j$-ka casin$_{i/j}$-ul cohaha-n-ta-ko]
John-NOM Mary-NOM self-ACC like-PRES-DEC-COMP
sayngkakha-n-ta]]
think-PRES-DEC
'John$_i$ thinks that Mary$_j$ like himself/herself$_{i/j}$'

(33) a. [John$_i$-un [Nay$_j$-ka casin$_{*i/j}$-ul cohahanta-ko]
John-NOM I-NOM self-ACC like-COMP
sayngkakha-n-ta]
think-PRES-DEC
'John$_i$ thinks that I$_j$ like self$_{*i/j}$'

b. [John$_i$-un [ney$_j$-ka casin$_{*i/j}$ -ul ...] ...]
you-NOM
'John$_i$ thinks that you$_j$ like yourself$_{*i/j}$'

In (33a&b) casin is bound only to the embedded subject nay ('I') and ney ('you') respectively, but not to the matrix subject. In (32), casin is bound to the third person Mary and John, allowing long-distance binding. (34) below shows the structure of the embedded clause of (32-33).[13]

(34)



Following the Multiple Spec Theory in Chomsky (1995b), casin in (34) moves from the VP complement position to the outer Spec of VP to check its formal features. At this position, the Case feature is checked off, but the [+Anaphoric] remains without checking due to the lack of a referential DP. The phi-features cannot be checked either because casin inherently

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[13] A VP shell and overt object and V-raising are assumed in Korean as shown in Chapter 2. An outer Spec must be constructed to check strong features which induce overt raising (See Chomsky (1994) and Chomsky (1995b).

lacks those features. The unchecked formal features of casin such as the anaphoric feature and phi- features continue to move to the T head to be checked off by a referential DP. Recall that casin can refer to any person due to the lack of phi-features. On the T head, the [+Anaphoric] enters a checking relation with a DP in [Spec, TP].[14] The anaphoric feature is checked off by the DP, obtaining phi-features from the DP at the same time. As seen in (33), if the DP is nay ('I'), the anaphor recovers its references by the first person DP, and obtains phi-features from the same DP. The same analysis applies to the cases when the DP in [Spec, TP] is ney ('you') or Mary. The newly acquired phi-features of the anaphor are thus determined by the DP in the embedded [Spec, TP].

In the first cycle, casin can be always bound to any person, since it lacks phi-features. Feature mismatch in (33) takes place in a checking configuration of the matrix T between the matrix subject ([+3]) and the acquired phi-features ([+1] or [+2]). According to (17), mismatch with the

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[14] Recall that caki ([+3]) enters into a checking configuration with the embedded subject on the embedded T, but a checking relation is formulated only when the embedded subject is a third person DP, because mismatch in phi-features cancels a derivation. Unlike caki, casin lacks phi-features, which makes casin always enter into a checking relation with any person DP in the first cycle.

acquired features cancels a derivation. Cancellation of a derivation does not mean nonconvergence. If there is any alternative way to converge, computation continues. Casin has [+A, +I] which makes further computation possible into the second cycle. But there is no matching DP in phi-features in the second cycle, which yields the blocking effect.

The observations are summarized as follows. SU1 indicates the matrix subject, and SU2, the embedded subject. Casin is positioned hierarchically lower than SU2.

(35) Long-Distance Binding Allowed

	SU1	SU2	
a.	$John_i$	$Bill_j$	$casin_{i/j}$
b.	$John_i$	$fire_j$	$casin_{i/*j}$
c.	$John_i$	$they_j$	$casin_{i/*j}$

(36) Long-Distance Binding Blocked

	SU1	SU2	
a.	$John_i$	you_j	$casin_{*i/j}$
b.	$John_i$	I_j	$casin_{*i/j}$
c.	$they_i$	$John_j$	$casin_{*i/j}$

Unlike [+A, -I], the anaphoric feature [+A, +I] basically does not block anything, since this feature is accessible to further computation. In (35), phi-feature match (35a) and

nonmatch (35b) respectively do not induce the blocking effect, providing the long-distance binding ((35c) will be discussed later). But in (36), phi-feature mismatch blocks long-distance binding with the matrix subject. The so-called blocking effect is a natural consequence in (36a&b), because casin actually becomes the second person anaphor (36a) and the first person anaphor (36b), respectively, in the first cycle, and thus it can never be bound to another person DP in the second cycle. In (36c), the anaphor assumes a third person singular, which also cannot be bound to a third person plural, inducing the same blocking effect. The point is that the blocking effect in (36a-c) is not a unique phenomenon of casin type anaphora. Even other types of anaphora such as caki ([+3]) and himself ([+3]) have such a blocking effect, when there is a feature mismatch, and no further computation is possible into the next cycle.[15]

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[15] Cole et al. (1993) use "the blocking effect" for the cases in which successive binding is blocked by feature mismatch with an intermediate subject (e.g. ziji in Chinese). They state that there is no blocking effect in the cases where long-distance binding is possible in spite of feature mismatch with the intermediate subject (e.g. se in Italian). My claim is that, if the blocking effect derives from feature mismatch between the anaphor and the antecedent, then the effect is not present only in ziji-type anaphors, but present in all types of anaphors, i.e., both local and long-distance anaphors, and both ziji-type and se-type anaphors within long-distance anaphors. Thus the blocking effect should not be characterized as a unique phenomenon shown in a certain type of anaphors within long-

The question arises of whether further computation is available after feature mismatch in casin. (35c) provides evidence, as illustrated below.

(37) John$_i$-i kutul$_j$-i casin$_{i/*j}$-ul salangha-n-ta-ko
John-NOM they-NOM self-ACC love-PRES-DEC-COMP
mit-ess-ta
believe-PAST-DEC
John$_i$ believed that they$_j$ love himself$_{i/*j}$'

Though a derivation is canceled due to feature mismatch in the embedded clause, [+A, +I] causes the anaphoric feature to be accessible for further computation. In the matrix clause there is a DP which matches in the person and number features. We have shown that the blocking effect takes place when there is no further derivation after feature mismatch. In the above case, there is an alternative convergent derivation in the next cycle after feature mismatch. As expected, the blocking effect does not hold for (37). This provides crucial evidence that the blocking effect neither depends on a language group nor even on an anaphor type, but on morphological properties of an anaphor and feature checking.

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distance anaphora, but should be analyzed as a result of feature checking.

Unlike caki and himself, casin does not show the cancellation of a derivation in the first cycle. This is because casin lacks phi-features, and thereby can be associated with any person DP in the first cycle. The blocking effect can be more easily observed in this case. However, we should not jump to the conclusion that the blocking effect is present only in this type of anaphors.

So far we have shown that the long-distance binding of caki across the embedded subject and the prohibition of such binding in casin cannot be contrasted as the presence and the absence of the blocking effect. In all types of anaphora, the blocking effect can occur as a result of feature checking. Even in himself, there is such effect. With this in mind, propria in Italian will be discussed next.

5.5.4. Propria

Propria in Italian can take an antecedent of any person (Cole, Hermon and Sung 1993), showing long-distance binding. Unlike ziji and casin, which can also take an antecedent of any person, propria does not exhibit the blocking effect. I assume that such difference lies in its morphological properties:

(38) Propria has full specification of phi-features in the lexicon such as [+1, +2, +3], while ziji or casin totally lack phi-features.

Based on the above assumption, consider the following.

(39) Gianni$_i$ suppone che tu$_j$ sia inamorato
Gianni supposes that you are in love
della propria$_{i/j}$ moglie
with self's wife.
'Gianni$_i$ supposes that you$_j$ are in love with his$_i$/your$_j$ wife'

As a long-distance anaphor, propria has [+A, +I]. In the case of casin, phi-features are later acquired by feature checking, but in case of propria, full specification of phi-features undergoes a checking procedure. But convergence derives only from feature match: In (39), checking with [+1] and [+3] crashed in the first cycle, only checking with [+2] converges. In the next cycle, checking with [+1] and [+2] crashes, only checking with [+3] converges. However many derivations are canceled, if there is even one convergent derivation, the sentence converges. Thus propria can virtually take an antecedent of any person, as shown in (40).

SU1 indicates the matrix subject, and SU2, the embedded subject. Propria is positioned hierarchically lower than SU2.

(40)

	SU1	SU2	
a.	$John_i$	$Bill_j$	$propria_{i/j}$
b.	$John_i$	I_j	$propria_{i/j}$
c.	$John_i$	You_j	$propria_{i/j}$

As seen above, the morphological properties of propria allow the anaphor to be bound to an antecedent freely. There is no non-convergent derivation, as found in caki binding, and there is no blocking effect, as found in casin or ziji. Cole and Wang (1996) treats propria and ziji as having the same morphological properties, based on the fact that they take an antecedent of any person. However, I claim that their specification of phi-features is different: one totally lacks such specification ([-phi]), the other has a full specification of [+1,+2,+3]. Such morphological differences can account for a degree of freedom in binding among casin (ziji), caki (se), and propria: casin ([-phi]) is more restricted, caki ([+3]) is less restricted, and propria ([+1,+2,+3]) is the most free within long-distance binding anaphora. In the following section, I further examine whether

the recent proposal by Cole and Wang (1996) is accounted for under a feature checking analysis.

5.6. Separation between the Antecedent and the Blocker

Cole and Wang (1996) argue that the conditions on antecedence and blocking are disjoint. They provide evidence from ba and bei nominals as illustrated below.

(41) Zhangsan$_i$ yiwei wo$_j$ hui ba ni$_k$ ling hui
Zhangsan think I will BA you lead back
ziji$_{*i/j/k}$ de jia
self DE home
'Zhangsan$_i$ thought I$_j$ would take you$_k$ back to *his$_i$/my$_j$/your$_k$ home' (=(4a) in Cole and Wang (1996)

(42) Zhangsan$_i$ yiwei wo$_j$ hui bei ni$_k$ ling hui
Zhangsan think I will BEI you lead back
ziji$_{*i/j/k}$ de jia
self DE home
'Zhangsan$_i$ thought I$_j$ would be taken by you$_k$ back to *his$_i$/my$_j$/your$_k$ home' (=(5a) in Cole and Wang (1996)

In (41-42), ba and bei nominals cannot block binding with the embedded subjects, while the embedded subjects block further binding with the matrix subjects. Cole and Wang (1996) claim

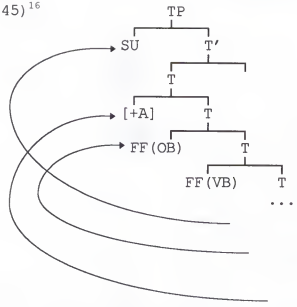
that ba and bei nominals are not in [Spec, Agr], so that agreement checking with the anaphor does not occur with these nominals. They maintain that only the embedded subjects in [Spec, AgrP] block the anaphor movement by agreement checking. As we have argued in the previous sections, if Condition A and the blocking effect are uniformly obtained by feature checking, the proposal of disjointness between antecedency and blocking should be abandoned. In what follows, I will show how we can account for both antecedency and blocking in Chinese in terms of feature checking.

In Chapter 4, I proposed that subject orientation vs. no particular orientation derives from the interaction between the anaphoric feature raising and the proposed LF structure. In English, a subject moves to [Spec, TP], and the formal features of an object covertly adjoin to the T head. The anaphoric feature raised on the T head forms a checking relation with both the subject and the formal features of the object. Such simultaneous checking relationship results in no particular orientation of the antecedent in English.

(43) John_i told Bill_j about $\text{himself}_{i/j}$

(44) John_i told me_j about $\text{himself}_{i/*j}$

(45)[16]



As seen in (45), [+Anaphoric] is checked by SU and FF(OB). As a result, (43) ends up with binding both the subject and the object. (44) yields only one interpretation, being bound by the subject, since the phi-features of the anaphor (a third person) cannot be checked by a first person feature within FF (OB). If this analysis applies to the Chinese cases, both the subject and the ba and bei nominals may together enter into a checking relation with the anaphoric feature. Unlike himself, ziji lacks phi-features. Hence, the anaphoric feature of ziji can be bound to both person features at the same time, as seen in the embedded clauses of (41-42). The anaphoric feature [+A, +I] also permits further movement to the matrix clause.

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[16] The dots indicate abbreviation of the structure. Refer to Chapter 4 for a detailed structure.

In (41-42), the matrix subject is a third person DP, which match neither a first person feature of wo nor a second person feature of ni. Thus the blocking effect occurs, though feature raising is basically allowed.

On the other hand, in (46) and (47) below, the matrix subject is a third person DP, matching with a third person feature of Lisi in the embedded clause.

(46) Zhangsan$_i$ yiwei Lisi$_j$ hui ba ni$_k$ ling hui
Zhangsan think Lisi will BA you lead back
ziji$_{i/j/k}$ de jia
self DE home
'Zhangsan$_i$ thought Lisi$_j$ would take you$_k$ back to his$_i$/his$_j$/your$_k$ home' (=(4b) in Cole and Wang (1996))

(47) Zhangsan$_i$ yiwei Lisi$_j$ hui bei ni$_k$ ling hui
Zhangsan think Lisi will BEI you lead back
ziji$_{i/j/k}$ de jia
self DE home
'Zhangsan$_i$ thought Lisi$_j$ would be taken by you$_k$ back to his$_i$/his$_j$/your$_k$ home' (=(5b) in Cole and Wang (1996))

In (46-47), ziji recovers its references by the third person or the second person DP. In the next cycle up, a third person DP which matches in phi-features with the anaphor is present.

In this case, the blocking effect does not take place. If such reasoning is on the right track, the following sentences are predicted to be grammatical.[17]

(48) Zhangsan$_i$ yiwei wo$_j$ hui ba Lisi$_k$ ling hui
Zhangsan think I will BA Lisi lead back
ziji$_{i/j/k}$ de jia
self DE home
'Zhangsan$_i$ thought I$_j$ would take Lisi$_k$ back to his$_i$/my$_j$/his$_k$ home'

(49) Zhangsan$_i$ yiwei wo$_j$ hui bei Lisi$_k$ ling hui
Zhangsan think I will BEI Lisi lead back
ziji$_{i/j/k}$ de jia
self DE home
'Zhangsan$_i$ thought I$_j$ would be taken by Lisi$_k$ back to his$_i$/my$_j$/his$_k$ home'

The point is that one of the phi-features which enters into a checking relation with the anaphoric feature on the embedded T can raise to the matrix T, pied-piped within [+A, +I], if the

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[17] Judgment made by several native Chinese speakers varies. However, they agree that anaphor's association with Zhangsan in (48) and (49) is at least marginally acceptable, while it is totally ungrammatical in (41) and (42). Especially thanks go to Zhinong Qu who made judgment on Chinese data.

matrix subject has one of those features. In contrast, the apparent blocking effect is due to differences between phi-features in the matrix subject and features raised onto the embedded T. The analysis of the Chinese facts is speculative and remains for future research.

5.7. Concluding Remarks

I have argued that general feature checking involves the presence and absence of the blocking effect in both local binding and long-distance binding anaphora. As consequences of our analysis, (i) we do not need to parameterize Infl across languages; (ii) we do not need to depend on agreement checking exclusively on Agr for the presence of the blocking effect. Agreement checking is neither unique for the blocking effect nor exclusively carried out on Agr, but necessary in all syntactic phenomena when a checking relation is formulated; (iii) a single language which has two types of reflexives, i.e., the one with the blocking effect and the one without the blocking effect, is well accounted for; (iv) the contrast between casin or ziji and propria is well explained: though they apparently look similar in their morphological properties by taking an antecedent of any person, they show different binding phenomena; (v) feature checking which has been proposed for long-distance and local binding facts can

also account for the presence and absence of the blocking effect, satisfying the minimalist goal toward simplicity; and (vi) the Chinese facts that show that conditions on antecedence and blocking are disjoint are accounted for in terms of feature checking without additional assumptions.

CHAPTER 6
THEMATIC VS. STRUCTURAL ASYMMETRY IN ANAPHOR BINDING

This chapter argues against anaphoric binding by thematic structure in favor of a structural analysis, in particular, a feature checking analysis, based on evidence from psych-verb and causative constructions in the framework of the Minimalist Program. Section 1 discusses previous analyses of psych-verb constructions. Critically reviewing the previous analyses, in Section 2, I propose that the Experiencer object or Causee moves to a structurally higher position than the subject at LF. Section 3 provides supporting evidence for the proposal posited in Section 2. Section 4 shows how psychological verb facts fit into the feature raising analysis. In Section 5, causative constructions are dealt with in a similar vein to the psychological verb constructions. I show that the causative constructions can also be well incorporated into the feature raising analysis. In Section 6, other non-c-commanding cases are analyzed in terms of feature checking. In Section 7, I discuss the dative and double object constructions. Finally, concluding remarks are given in Section 8.

6.1. Previous Analyses

Giorgi (1983-1984, 1991), Reinhart and Reuland (1991, 1993), Reuland and Koster (1991), Hellan (1991), Everaert (1991, 1996), Katalin (1991), and Pollard and Sag (1992) argue that binding theory should make crucial reference to thematic structure rather than structural representations. Analyses based on thematic structure seem to have an advantage in accounting for the psychological verb constructions, as illustrated in (1) and (2).

(1) *Gianni si preoccupa.
'Gianni worries himself'

(2) Questi pettegolezzi su di sé preoccupano Gianni piùdi ogni altra cosa.
'These gossips about himself worry Gianni more than anything else (Belletti and Rizzi (1988, 296)'

The anaphor in (1) is in a c-commanding position but the sentence is ungrammatical. The anaphor in (2) is in a non-c-commanding position, and the resulting sentence is grammatical. This is contrary to expectation in a structural analysis that is crucially based on a c-command relation. To explain this distribution, Belletti and Rizzi (1988) propose that a Theme subject in frighten-type verbs is generated lower than an Experiencer object at D-

structure, where Condition A applies, providing proper binding. In (2), the theme subject is lower than the Experiencer object Gianni, positioned outside V' at D-structure. The anaphor contained in the theme subject is thus bound by the Experiencer object Gianni.

Giorgi (1983-84) argues that antecedency is determined by a thematic hierarchy, which ranks Experiencer above Theme. She notes that subjects with an agent role trigger coreference with a long-distance anaphor in Italian, because the agentive subjects are the prominent argument in the P-domain that she proposes.[1] In cases of non-subject antecedents to which anaphors with experiencer verbs belong, she claims that the non-subject Experiencer becomes the prominent argument in the P-domain due to the thematic hierarchy. She thus approaches both c-commanding and non-c-commanding cases in terms of the thematic hierarchy, trying to overcome the weaknesses that the structural accounts have had for non-subject antecedents.

The thematic hierarchy, however, cannot account for the differences between the fear class and the frighten class: with regard to binding, the frighten class may show a backward binding, while the fear class does not. Prominency

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[1] P-domain is defined as follows: One of the arguments of the thematic domain can be said to be prominent with respect to the others and the set of the remaining ones can be called its P-domain (Giorgi 1983-1984).

theory is proposed by Grimshaw (1990) to account for such differences.

Grimshaw (1990) proposes that the relative prominence of an argument is determined in two dimensions, thematic and aspectual. The argument that is maximally prominent in both dimensions antecedes an anaphor. The external argument is maximally prominent in the proposed two dimensions, and therefore qualifies as an antecedent. Regarding psych-verbs, in particular the frighten class, she argues that there is no external argument because of a mismatch between the two dimensions: the surface subject is not maximally prominent in the aspectual dimension, and thus cannot be a possible antecedent. In the thematic dimension, the Experiencer object is more prominent than the Theme subject, and therefore antecedes the Theme subject, which yields the backward anaphora. The fear class is different from the frighten class in that the surface subject is maximally prominent both aspectually and thematically. Consider the following:

(3) They$_i$ fear each other$_i$.

(4) Pictures of each other$_i$ frighten them$_i$.

(5) Pictures of each other annoy the politicians (Grimshaw 1990: 165)

(6) Each other$_i$'s pictures depress the politicians$_i$
(Grimshaw 1990: 162)

(3) shows a typical c-command relation in which the subject antecedes the object. According to Grimshaw (1990), the Experencer subject in fear verbs is maximally prominent in both the aspectual and thematic dimension, and therefore can antecede the anaphor. The anaphor in (4-6) is, however, in a non c-commanding position, but the sentences are grammatical. Grimshaw claims that since the Theme subject in (4-6) is not an external argument, prominency should be determined in the thematic dimension, where the Experiencer object is more prominent than the Theme subject, providing a proper binding.

In sum, it has been argued that the binding facts for psych-verbs cannot be stated in configurational terms, but must be accounted for by thematic relations at D-structure. In what follows, I will show why such analyses are deficient and offer a proposal in favor of a structural analysis.

6.2. Criticism and Proposal

With evidence from raising constructions, Lasnik (1996) recently argues that binding conditions are independent of thematic structure, and hence do not belong to D-structure. The well-known example is as follows.

(7) a. They$_i$ seem to each other$_i$ to be clever

b. D-structure: seem to each other [they to be clever]

The anaphor each other is not bound to the antecedent they in D-structure (7b). In accordance with minimalist approaches that dispense with D-structure, Lasnik (1996) suggests that geometric structure at LF rather than thematic relations at D-structure may provide a reasonable account of the binding facts. Along the lines of Lasnik, Belletti and Rizzi (1988) may be criticized using the following counterexamples.

(8) They$_i$ were told that it would be reasonable for pictures of each other$_i$ to be available.

(9) They$_i$ were informed that it was unlikely that pictures of each other$_i$ would be available (Grimshaw 1990: 166).

As noted by Grimshaw (1990), the anaphor in (8) and (9) is bound to the matrix subject they which is in a non-theta-position. The non-theta-position is a derived position which is not present at D-structure. This is direct evidence against Belletti and Rizzi's claim that an anaphor is bound from a theta position at D-structure.

Moreover, prominency theory derived from the thematic hierarchy, as in Giorgi (1984, 1991), Benedicto (1991),

Katalin (1991), Grimshaw (1990), Pollard and Sag (1992, 1994), cannot efficiently account for the binding phenomena when two predicate domains are involved, as illustrated in (10-14).

(10) They$_i$ like each other$_i$'s friends

(11) They$_i$ expected each other$_i$ to win

(12) They$_i$ arranged for each other$_i$ to win

(13) They$_i$ send presents on each other$_i$'s birthdays. ((10)-(13), Grimshaw 1990: 159)

(14) John-i Mary-lul caki-uy cip-ulo ka-keyha-yss-ta
John-NOM Mary-ACC self-GEN house-to go-CAUS-PAST-DEC
'John made Mary to go his/her own house'

Examples (10-14) have two predicate domains. When two predicate domains are involved, relative prominence cannot be determined. If the relative prominence of argument structure in (10-14) is not determined in one domain, but is rather determined in two different predicate domains, how can the following is blocked?

(15) *John$_i$ said that Bill$_j$ hates himself$_{i/j}$

(16) *The men$_i$ expected the girls$_j$ to see each other$_{i/j}$

(17) *We$_i$ said that they$_j$ bought pictures of each other$_{i/j}$

To rule out (15-17), in standard binding theory, all the structural notions of binding domain and accessible SUBJECT were proposed, reflecting the assumption that argument/thematic structure alone cannot account for all binding phenomena. A wider range of data from both local and long-distance anaphora are better accounted for by geometric structure. Developing my own work, Lee (1996f), I shall argue that, with reasonable assumptions, even psychological predicates, causatives, and a few others such as binding from within PPs could be incorporated into core binding cases.

Based on the main proposal which was posited in Chapter 4, I propose that the hierarchy of argument structure is configurationally represented at LF for interpretation. Specifically, adopting Chomsky (1995b), I propose that T has a [prominent] feature, so that this feature should be checked off by an NP in [Spec, TP]. In most constructions, this [prominent] feature is checked off by the subject (the external argument), but in constructions of psychological predicates and causatives which induce a non-agentive reading,[2] the feature [prominent] attracts the Experiencer

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[2] The Experiencer object or Causee is more prominent in the non-agentive reading, but agentive subjects are always more prominent in the agentive reading, though the psychological and causative verbs are involved.
i) The children$_i$ annoyed each other$_i$
ii) John-i caki-uy tongsaying-ul ul-keyha-yss-ta

object or Causee which is more prominent than the Theme subject or Causer.[3] Let us consider (18).

(18) [John T [prominent] likes himself]

The prominent feature on T is checked off by the external argument John. Now take a look at (19) and (20) which are LF structures of (2) and (5) respectively.

(19) [[*Gianni* [Questi pettegolezzi su di sé] T [prominent] preoccupano *t*] piùdi ogni altra cosa]
'These gossippings about himself worry Gianni more than anything else'

(20) [*the politicians*[Pictures of each other] T [prominent] annoy *t*] (Grimshaw 1990, 165)

John-NOM self-GEN brother-ACC cry-CAUS-PAST-DEC
'John made his brother cry'
(i)and (ii) pertain to the core binding cases based on the c-command relation between the antecedent and the anaphor due to the agentive reading of the sentences.

[3] As Dr. Gary Miller commented, some version of a thematic hierarchy is still operational here. However, my claim is different from the previous argument in that such a hierarchy is configurationally represented at LF by Last Resort due to the proposed [prominent] feature on T.

In (19) and (20), the Experiencer object is more prominent,[4] hence, it moves to the outer Spec position[5] of TP at LF, where it checks off the prominent feature on T. The structural configuration is thus provided for the anaphor to be bound to the Experencer object at LF.

6.3. Supporting Evidence

I have proposed that a relative thematic prominence in arguments is represented in the geometric structure at LF. Not only at LF but also at overt syntax there is a case in which prominency is obtained by a structural representation. Evidence comes from a sentence with focused NPs in languages like Korean and Japanese.[6] When an NP is focused, it raises to a structurally higher position than the subject at overt component. Such raising is motivated by checking off

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[4] The Experiencer object has [prominent] by the thematic hierarchy, and T has [prominent] by our assumption. By Last Resort, the mutual checking takes place to check off the prominent feature.

[5] I assume the multiple Spec theory of Chomsky (1995b).

[6] Following Saito (1992) and Fukui (1993), I assume that there are two types of scrambling in Korean and Japanese: A-scrambling and A'-scrambling. A-scrambling undergoes an obligatory Spec-head agreement and cannot be undone at LF, while A'-scrambling undergoes an adjunction operation and can be undone at LF. Here I assume that the focused NP is not just a PF scrambling, but a kind of A-scrambling at LF which derives from morphological requirements to check off the feature [+Focus]. By being fronted, the focused NP checks its [+Focus] feature off at syntax, and it also checks off the [prominent] feature on T at LF.

[+Focus] feature in the sense of Miyagawa (1993) and Fukui (1993). Raising triggered by morphological requirements has no undoing effect at LF, hence, unlike the pure scrambling, the focused NP remains in a structurally higher position than the subject at LF, properly checking off the [prominent] feature on T. Consider the following.

(21) [*Sakwa-lul* [John-i T [prominent] *t* mek-ess-ta]]
apple-ACC John-NOM eat-PAST-DEC
'Apple, John ate t'

The NP sakwa-lul ('apple-ACC') in (21) is focused by raising to a structurally higher position than the subject.[7] Adopting Miyagawa (1993), who claims that obligatory scrambling (A-scrambling) is driven by Case or focus features[8] in Japanese, I argue that the NP fronting in (21)

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[7] The structure can be analyzed both as optional scrambling which can be undone at LF, and as an obligatory scrambling which cannot be undone at LF in the view of Saito (1992) and others. The contrast between the two readings is carried out by the stress; sakwa-lul ('apple') is stressed in the obligatory scrambling, but not in the optional scrambling, by which different LF interpretation is obtained.

[8] Fukui (1993) also suggested [+Focus] feature in English topicalization. In accordance with his PVP (parameter value preservation) measure which states that a movement is costless and hence truly optional, if it is compatible with the parameter value for the language, he argues that English topicalization which induces leftward movement, is analyzed as a kind of "focalization" process

could be motivated by the necessity to check off [+Focus] and the [prominent] feature on T. This focalization process constitutes a case in which prominency is structurally represented both overtly and covertly.

So far I have treated a focused NP as a case of A-scrambling. Now let us consider how an A-scrambling at overt syntax affects prominency at LF, and hence binding at the same level. Binding facts with a scrambled NP are illustrated in (22) and (23).

(22) John$_i$-ga Bill$_j$-ni [*zibun*$_{i/*j/*k}$-*o* [dare$_k$-ka *t*
John-NOM Bill-IO self-DO someone-NOM
semeta to]] itta
blamed that told (Katada 1991, 301)
Lit. 'John$_i$ told Bill$_j$ that *self*$_{i/*j/*k}$, someone$_k$ blamed *t*'

(23) John$_i$-i Bill$_j$-eykey [*caki*$_{i/*j/*k}$-*lul* [nuwkunka$_k$-ka *t*
John-NOM Bill-IO self-DO someone
piphanha-yss-ta-ko]] malha-yss-ta
criticize-PAST-DEC-COMP tell-PAST-DEC
Lit. 'John$_i$ told Bill$_j$ that *self*$_{i/*j/*k}$, someone$_k$
criticized *t*'

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triggered by a grammatical factor, i.e., the Spec-head agreement between a [+Focus] head and its specifier.

In (22) and (23) zibun and caki are fronted in the embedded clause. In these cases, the anaphors are only bound to the matrix subject, not to the embedded subject.

If antecedency is determined by relative prominence of the thematic structure at D-structure in (22) and (23), the embedded subject should be the most appropriate antecedent, because it is the most prominent argument within the predicate domain to which zibun and caki belong. The binding facts in (22) and (23), however, exhibit that zibun and caki are bound to the matrix subject, and not to the embedded subject. This means that the anaphors pick up their antecedent not from the thematic structure, but from the geometric structure at LF.

6.4. Binding in Psych-verb Constructions and its Incorporation into the Feature Raising Anaysis

I have proposed that the psych-verb facts can be accounted for by a structural analysis, based on the assumption that prominency is structurally realized at LF for interpretation. Let us take a look at the following examples.

(24) [each other's pictures frighten the girls]

(25) LF: [*the girls* [each other's pictures frighten *t*]]

By fronting the Experiencer object in (25), the LF structure provides a referential NP for the anaphor to be bound. The unchecked [prominent] feature on T is also checked off by the more prominent argument the girls. This non-agentive reading of the psychological verbs is well contrasted with the agentive reading of those verbs and the fear class verbs as illustrated below.

(26) They fear each other

(27) The students frightened each other

They and the students in (26-27) are maximally prominent, when the agentive reading is induced. In these cases, the [prominent] feature on T does not attract any other argument, because the NP in [Spec, TP] can check off the [prominent] feature on T. As a consequence, we can generalize our assumption to the overall constructions: the [prominent] feature checking is not a unique assumption for certain constructions such as non-agentive reading of psych-verb constructions and causative constructions, but a general assumption which can apply to both the agentive and non-agentive readings of all constructions.

A question arises of whether the binding facts in psych-verbs fit into the feature raising analysis which is

the main claim of this dissertation? Now let us embed a psych-verb construction, as in (28-29):[9]

(28) We$_i$ know that each other$_{i/j}$'s pictures frighten the girls$_j$

(29) We$_i$ know that pictures of each other$_{i/j}$ frighten the girls$_j$

In (28-29), each other can be bound to both the girls and we. How can the anaphor pick up its antecedent forwards and backwards in the sentence? If we posit its LF structure as in (30) in accordance with our proposal in section 6.2., grammaticality of the sentence (28) is naturally obtained.

(30) LF: [We know that [*the girls*[each other's pictures/pictures of each other T [prominent] frighten *t*]]]

In (30), both we and the girls are in a structurally higher position than the anaphor, providing proper antecedents. Assuming that the anaphoric feature raises at LF, the

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[9] I thank John Bro who gave grammatical judgment of these sentences with all possible meanings.

feature undergoes successive cyclic adjunction to the matrix T, recovering its references from the girls and we.[10]

6.5. Binding in Causative Constructions and its Incorporation into the Feature Raising Anaysis

According to Pesetsky (1995) and Fujita (1996), backward binding of non c-commanding cases shows up not only with psych-verbs but also with causative predicates with a nonagentive reading. See (31) and (32).

(31) The boy/His carelessness broke the glass (Fujita 1996, 151)

(32) caki$_i$-uy kwake-ka John$_j$-ul kwolop-hi-ess-ta
Self-GEN past-NOM John-ACC annoy-CAUS-PAST-ta
'Self's past annoyed John.
LF: [*John$_i$-ul* [caki$_i$-uy kwake-ka *t* kwolop-hi-ess-ta]]

(31) is an example of a lexical causative in English. (32) is a Korean example of a lexical causative. Here the Causee John is more prominent than the non-volitional Causer, hence it moves to a structurally higher position at LF, where it

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[10] I assume that we have two LF options as follows:

(i) We$_i$ know that each other$_i$'s pictures frighten the girls
(ii) We know that [*the girls*$_i$ [each other$_i$'s pictures frighten *t*]]

provides the binder for the anaphor and also checks off the [prominent] feature on T.

Let us consider the periphrastic causatives in (33) and (34).

(33) Mary/the noise made the baby cry (Fujita 1996, 151)

(34) a. caki$_i$-uy kwake-ka John$_j$-ul uwl-keyha-yss-ta
Self-GEN past-NOM John-ACC cry-CAUS-PAST-ta
'Self's past made John cry.

b. LF: [*John$_i$-ul* [caki$_i$-uy kwake-ka *t* uwl-keyha-yss-ta]]

According to our proposal, the Causee is raised in (34b) at LF, thereby providing a proper binder for the anaphor, while checking off the [prominent] feature on T.

As Pesetsky (1995) and Fujita (1996) note, backward binding is restricted to a non-volitional Causer subject. This phenomenon is parallel to the nonagentive reading of psych-verb constructions. When the Causer induces the volitional/agentive reading, backward binding cannot take place. The [prominent] feature checking is thus consistently involved in these constructions as well as in psych-verb constructions. As we have mentioned, for the nonagentive reading, the Causee is raised to the

structurally higher position to check the [prominent] feature on T, since it is more prominent than the Causer. However, in the agentive causatives, such raising for the [prominent] feature checking is not needed, because the Causer is more prominent and hence can check off the [prominent] feature on T. Consider the following.

(35) John$_i$-i caki$_i$-uy tongsayng-ul kowlop-hi-ess-ta
John-NOM self-GEN brother-ACC annoy-CAUS-PAST-DEC
'John$_i$ annoyed self$_i$'s brother'

(36) John$_i$-i caki$_i$-uy tongsayng-ul ul-keyha-ess-ta
John-NOM self-GEN brother-ACC cry-CAUS-PAST-DEC
'John made self's brother cry'

As expected, the agentive reading of the lexical and periphrastic causative constructions do not raise the Causee to the structurally higher position. Consequently, the [prominent] feature checking extends to causative constructions of both agentive and nonagentive reading.

How are the causative facts incorporated into the feature raising analysis? Consider (37) and (38) which induce agentive reading.

(37) [Taroo$_i$-wa [Hanako$_j$-ni zibun$_{i/j}$-no huku-o
Taroo-TOP Hanako-IO self-GEN clothes-ACC
ki-sase-ta]]
wear-CAUS-DEC
'Taro made Hanako put on his/her own clothes'

(38) [John$_i$-i [Mary$_j$-eykey caki$_{i/j}$-uy os-ul
John-NOM Mary-DAT self-GEN clothes-ACC
ip-keyha-yss-ta]]
wear-CAUS-PAST-DEC
'John made Mary put on his/her clothes'

The internal arguments Hanako and Mary are analyzed as a subject due to the causative morpheme.[11] The causative predicates have the agentive reading, hence there is no need for raising of the Causee at LF. The anaphoric feature thus successively adjoins to each subject, as shown by indexation.

Now let us embed the lexical and periphrastic causative sentences (32-34) as in (39-40).

In (i), the anaphoric feature is checked off by the matrix subject, while in (ii), the anaphoric feature is checked off by the Experiencer object which is raised at LF.

[11] Subject orientation of the antecedent in Korean and Japanese is supported by these causative constructions: the internal argument is analyzed as subject due to the causative morpheme, though they have Accusative Case marking.

(39) [Mary$_i$-ka [caki$_{i/j}$-uy kwake-ka John$_j$-ul
Mary-NOM self-GEN past-NOM John-ACC
kwolop-hi-ess-ta-ko] sayngkakha-yss-ta]]
annoy-CAUS-PAST-DEC-COMP think-PAST-DEC
LF: [Mary$_i$-ka [*John$_j$-ul* [caki$_{i/j}$-uy kwake-ka *t*
kwolop-hi-ess-ta-ko]] sayngkakha-yss-ta]
'Mary$_i$ thought that self$_{i/j}$'s past annoyed John$_j$'

(40) [Mary$_i$-ka [caki$_{i/j}$-uy kwake-ka John$_j$-ul
Mary-NOM self-GEN past-NOM John-ACC
uwl-keyha-yss-ta-ko] sayngkakha-yss-ta]
cry-CAUS-PAST-DEC-COMP think-PAST-DEC
LF: [Mary$_i$-ka [*John$_j$-ul* [caki$_{i/j}$-uy kwake-ka *t*
uwl-key ha-yss-ta-ko] sayngkakha-yss-ta]
'Mary$_i$ thought that self$_{i/j}$'s past made John cry'

As is the case with the psych-verb constructions, the anaphor appears to be bound forwards and backwards. However, at LF, the anaphor is successively bound to the Causee and the matrix subject, since the Causee is raised due to prominency checking. In contrast to (37) and (38), the embedded clauses in (39-40) have nonagentive reading, hence the Causee is more prominent in these cases, inducing raising.

6.6. Other Non C-commanding Cases

Other non c-commanding cases still await a proper account. One of the constructions is binding from within PP, as illustrated below.

(41) $John_i$ talked to $Bill_j$ about $himself_{i/j}$

(41) is problematical for a structural analysis, since himself is not c-commanded by its antecedent Bill. However, if we adopt the so-called reanalysis which incorporates the preposition into the main verb[12], we may account for the binding facts. Please consider the tree for (41).

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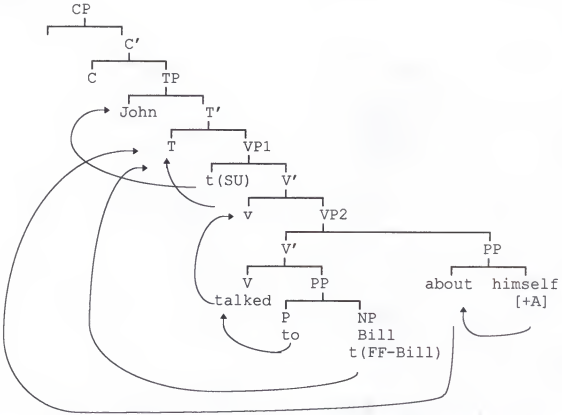
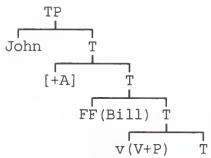
[12] In a similar line with reanalysis, Pollard and Sag (1992) argue that objects of a preposition are subcategorized for by the verb. They also claim that an anaphor is bound by a less oblique argument, assuming the object of to is less oblique than the object of about in (41). Adopting Marantz (1984), Reinhart and Reuland (1993) argue that the preposition and the verb necessarily form a complex thematic unit selecting the NP in the absence of a P predicate.

(42)



The preposition 'to' is incorporated to the main verb 'talked' and then the cluster 'talked+to' raises to the light verb v, and then to T at LF. Assuming that Bill should be assigned structural Case by 'talked+to' and himself should be assigned inherent Case via P ('about'), FF(Bill) should adjoin to T at LF where its Case is checked off and himself should stay in situ. The anaphoric feature [+A] which remains unchecked in himself now raises to T to be checked off by a checking relation with the subject and FF(Bill). The detailed structure of T is drawn in (43).

(43)



The following contrast also can be accounted for by reanalysis.

(44) *Mary talked to himself about Bill

(45) Mary talked to herself about Bill

In (44), the cluster 'talked+to' raises to T, and formal features of himself adjoin to T. The Case feature of himself is well checked off on T, but the [+anaphoric] feature cannot be checked off due to feature mismatch with Mary in [Spec, TP]. The sentence crashes as expected. On the other hand, in (45), both the Case feature and [+anaphoric] feature can be checked off on T, which result in convergence of the sentence.

So far, we have seen that binding facts in psych-verbs, causatives, and other non c-commanding constructions involving a preposition can be accounted for by the structural analysis, especially in the Minimalist framework. Furthermore, a feature-based account of anaphor binding can

eliminate the notion of the binding domain, accessible Subject, and Condition A. Binding thus reduces to feature checking at LF, which is a driving force for all other syntactic phenomena.

6.7. The Dative and Double Object Constructions

The dative and double object constructions are also problematical for anaphor binding. Discussion has been made by Barss and Lasnik (1986), Larson (1988, 1990), Aoun and Li (1989), Zubizarreta (1992), Pesetsky (1995), Baker (1996), and Fujita (1996). Consider the following examples from Fujita (1996).

(46) John showed Bill and Mary to each other's friends
(47) ?John showed each other's friends to Bill and Mary
(48) John showed Bill and Mary each other's friends
(49) *John showed each other's friends Bill and Mary

Fujita (1996) recently argues that backward binding reduces to the LF reconstruction effect in A-chains. With an elaborated VP structure, he claims that the second object in (47) covertly raises to [Spec, AgrpP] where it c-commands the first object under the LF reconstruction (Fujita 1996: 158). In contrast, with regard to (49), he argues that the second object has inherent Case, and hence should stay in

situ at LF (Larson 1988; Baker 1996).[13] Then the second object has no way to c-command the trace of the first object under the LF reconstruction. According to Fujita (1996), the contrast between (47) and (49) is thus accounted for under the reconstruction effect in A-chains. (46) and (48) are grammatical, since the anaphors are bound without recourse to the reconstruction effect.

As Fujita (1996) noted, a problem arises for his account with the following examples.[14]

(50) John showed Mary to herself

(51) *John showed herself to Mary

(50) has two VP-internal arguments: from the VP-internal position, Mary raises to [Spec, AgroP] and to+herself raises to [Spec, AgrpP] which is placed between AgroP and VP. If the LF reconstruction occurs, the reconstructed Mary is bound to the raised herself, yielding a Condition C violation. Contrary to our expectation, however, the

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[13] Baker (1996: 194) argues that in the double object constructions, the agent and the goal receive structural Case and the Theme is left to get Case by other means. He provides evidence from Mohawk and Gunwinjguan languages which show agreement with the agent and the goal but not with the theme.

[14] Fujita's problem arises within his proposal in favor of the reconstruction effect in A-chains. As Dr. Gary Miller commented, (50) and (51) are not a problem for Larsonian shell.

sentence is well-formed. On the other hand, in (51), herself raises to [Spec, AgroP] and to+Mary raises to [Spec, AgrpP] which is placed between AgroP and VP. The reconstructed herself could then be bound to the raised Mary in this case, incorrectly satisfying Condition A.

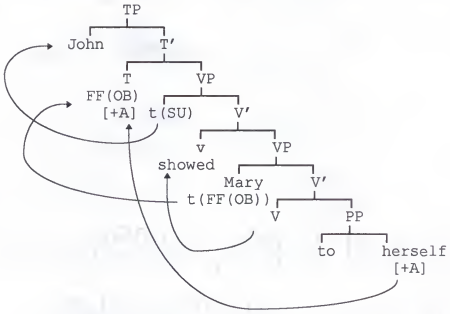
To solve this problem, he suggests that LF reconstruction in an A-chain must be an optional operation. Thus (50-51) are not involved in the LF reconstruction effect at all. Citing Lasnik (1993), he claims that a full category cannot be reconstructed from its own feature-checking position, and only a proper subpart of the whole phrase including the anaphor undergoes reconstruction. In this respect, the full reconstruction in (50-51) cannot occur from feature-checking positions, properly preventing a condition C violation and a Condition A satisfaction respectively. In contrast, (47) shows that a partial reconstruction from each other's friends correctly satisfies Condition A.

Fujita's optional and partial reconstruction in an A-chain means that only the complex DP phrases such as each other's friends and Bill and Mary can have a partial reconstruction for a proper binding configuration. All other NPs such as herself and Mary do not have the reconstruction effect, since they are raised to the Case checking position, and cannot be reconstructed as a full category.

As an alternative, I would like to analyze the dative and double object constructions in terms of feature checking. (50-51) are repeated as in (52).

(52) a. John showed Mary to herself
b. *John showed herself to Mary

c.



According to Chomsky (1995b), in (52c), the structure of (52a), the subject raises to [Spec, TP] in overt syntax, and the formal features of Mary covertly raise at LF. Herself does not need to be raised, because its Case is inherently satisfied by the preposition to. But the [+Anaphoric] feature which remains unchecked in herself should be checked off. The anaphoric feature thus adjoins to the T head by adjunction, where it is checked by John in [Spec, TP] and FF(Mary) on the T adjoined position. Checking by John crashes due to feature

mismatch, but checking by FF(Mary) converges, producing the desired binding.

The ungrammaticality of (52b) is naturally obtained, because formal features of herself raise to the T head to check Case and [+Anaphoric] features. Case feature is properly checked off, but the [+Anaphoric] feature cannot, since there is a feature mismatch between herself and John. The resulting sentence is, as expected, not well-formed.

Now let us consider the case in which a verb has complex DPs as its internal arguments. (46-47) are repeated as in (53).

(53) a. John showed Bill and Mary to each other's friends

b. ?John showed each other's friends to Bill and Mary

(53a) has exactly the structure (52c). The anaphoric feature of each other is checked off by FF(Bill and Mary) which is raised on the T head for Case checking. But a question arises of why (53b) is not as bad as (52b),[15] if the same checking process applies to all theses sentences. Let us compare (53b) with the following example.[16]

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[15] The grammatical judgment is made by Fujita (1996).

[16] The grammatical judgment is made by several native English speakers (Special thanks go to Suzanne Norris and Dr. Gary Miller).

(54)?*John showed friends of themselves to Bill and Mary

If we replace each other in (53b) with themselves as in (54) the sentence becomes worse. The ungrammaticality of (54) leads us to conjecture that the anaphoric feature cannot be checked off in this configuration. Thus (53b) must be categorized with (52b) and (54) as ungrammatical sentences rather than separately as a grammatical one.[17]

Unlike the dative conctructions that we have discussed, the double object constructions have no problem in checking the anaphoric feature while ruling out examples with incorrect binding. Consider the following.

[17] It is questionable why (53b) and (54) are still slightly better than the obvious ungrammatical sentence (52b) to some speakers, if Fujita's judgment is correct. An observable difference may lie in the fact that the anaphor in (52b) occupy an argument position of the verb, while the one in (53b) and (54) do not. This explanation is in a similar spirit with Fujita (1996) who argues for a partial reconstruction in A-chains in the case of complex DPs. Thus there could be a linguistic variation according to people who strictly stick to checking off the anaphoric feature, or allow something like the reconstruction in A-chains.

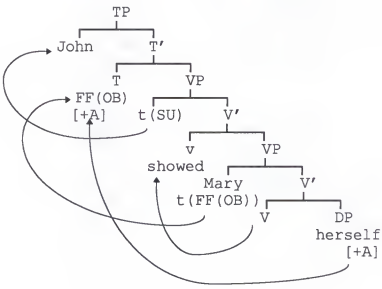
(55) a. John showed Mary herself

b. *John showed herself Mary

c. John showed Bill and Mary each other's friends

d. *John showed each other's friends Bill and Mary

e.



(55e), the structure of (55a), shows the double object construction at LF. The formal features of Mary raise to the T head to check the Case feature. Herself stays in situ, since it has inherent Case. But the anaphoric feature remains unchecked in herself. It raises to the T head, where it is properly checked off by FF(Mary). The desired well-formedness is obtained.

In (55b), herself raises to check Case and [+Anaphoric] features, but the anaphoric feature cannot be checked off due to feature mismatch between John and herself. Mary has

no motivation to raise, since its Case is inherently assigned in the original place.

Exactly the same checking procedure rules (55c) in, while ruling (55d) out. The anaphoric feature of each other is checked off by FF (Bill and Mary) in (55c), but it cannot be checked off in (55d), because John and the anaphor do not match in the number feature. Bill and Mary in (55d) has no way to be raised to formulate a checking relation with the anaphoric feature, because its inherent Case is already satisfied in situ.

6.8. Conclusion

So far we have discussed anaphora which do not seem to require a c-command relation. Psych-verbs, Causatives, and constructions with PPs have been accounted for in terms of feature checking under the minimalist framework. The dative and double object constructions have also been analyzed by feature checking. The peripheral cases, which were hardly handled by the standard binding theory, are thus incorporated into the core cases of anaphora. However, there still remain many other examples which need to be explained as illustrated below.

(56) a. Max_i boasted that the queen invited Lucie and $himself_i$ for a drink.

b. *Max boasted that the queen invited himself for a drink.

(Hamilton (1996), Reuland and Reinhart 1995)

(57) A picture of myself would be nice on that wall.

(Hamilton (1996), Reuland and Reinhart (1993))

Reinhart and Reuland (1993)[18] state that, since the anaphor in (56-57) does not constitute a coargument of the predicate, the predicate is not reflexive-marked, allowing the anaphor to stand free uncoindexed.

Baker (1995) argues that LFRs (Locally Free Reflexives) frequently used in the English of Jane Austen and other British writers cannot be accounted for by standard syntactic prominence concepts such as c-command nor by the notion of logophoricity, nor by emphasis or contrast. Arguing against all three approaches, he claims that LFRs have the status of intensified pronouns simultaneously

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[18] Reinhart and Reuland (1993) define the following:
a. A predicate is reflexive iff two of its arguments are coindexed.
b. A predicate (P) is reflexive-marked iff either P is lexically reflexive or one of P's arguments is a SELF anaphor (polymorphemic anaphor).
c. A reflexive-marked predicate is reflexive (Condition A).

satisfying two conditions: a contrastiveness condition and a condition of relative discourse prominence.[19] Such examples illustrated in (56-7) and British writings require further investigation.

[19] (i) Constrativeness Condition: Intensive NPs are appropriate only in contexts in which emphasis or contrast is desired (Baker 1995: 77). (ii) Condition of Relative Discourse Prominence: Intensive NPs can only be used to mark a character in a sentence or discourse who is relatively more prominent or central than other characters (Baker 1995, 80).

CHAPTER 7
CONCLUSION

I have shown how long-distance and locally bound anaphors recover their references under the feature raising analysis within the Minimalist framework. In contrast to previous arguments which claim that anaphors themselves move as an XP or an X^0 at LF, I have argued that the features of anaphors move at LF. I have shown that our analysis has some advantages over the previous analyses in that the minimal cost is taken by raising features rather than raising a full category at LF, and the artificial distinction between the monomorphemic anaphors and polymorphemic anaphors with respect to their structure can be abandoned. These consequences are fitting to the Minimalist goal that seeks an optimal derivation to satisfy certain economy conditions.

Starting from the representative examples from Korean and English, I have argued that the long-distance binding phenomenon results from successive checking of [+Anaphoric] and [+interpretable], while local binding results from checking of [+Anaphoric] and [-Interpretable]. Our analysis is meaningful, since not only the core representative cases

but also Picture-DP and expletive constructions can be accounted for. In fact, Picture-DP and expletive constructions have not been taken into much consideration under the previous analysis. With our feature raising analysis, however, such constructions that appear to be exceptionally long-distance bound can be explained and incorporated into the core binding phenomena.

As consequences of the feature raising analysis, the contrast between subject orientation and no particular orientation is naturally obtained for long-distance binding anaphors and local binding anaphors respectively. The proposed structure for Korean and English and the feature checking procedure on those structures results in a particular orientation of the antecedent.

Furthermore, I have shown that the presence and absence of the blocking effect within a single language can be explained under the feature raising analysis. Parameterization of Infl which has been argued for previously cannot provide a proper account for the cases where a single language has two types of anaphors, one showing the blocking effect, the other lacking the same effect. However, checking off the features such as [+Anaphoric], [±Interpretable], and [phi-features] determines not only the locality of the antecedent but also the blocking effect by feature mismatch.

The backward anaphors which do not require a c-command relation between the anaphor and the antecedent are also analyzed within our proposal. Psych-verbs, causatives, constructions with prepositional phrases, dative, and double object constructions are examples of such constructions which allow the backward binding. It has been an issue of much debate whether we need to approach them in terms of thematic/argument structure, or in terms of configurationality. Assuming that the configurational terms can give accounts for a wider range of data, in particular, the variety of data which shows the contrast between long-distance and local binding anaphors, I have attempted to incorporate the backward anaphora into the core binding cases.

I have proposed that Tense has a [prominent] feature, and this feature should be checked off by the most prominent argument at LF for interpretation. The external argument of an agent role always checks off the [prominent] feature. However, in the case where a construction has no external argument, as seen in the non-agentive reading of psych-verbs and causatives, I have proposed that the more prominent argument, such as Experiencer or Causee, moves to the position where it can check off the [prominent] feature on Tense. Along this line, the binder which seems to be structurally lower than the anaphor obtains a proper c-

commanding position at LF. On the proposed structure at LF, the anaphoric feature is checked off by successive raising exactly as in the core binding cases.

I have provided an analysis for a comprehensive range of data including the backward anaphora. I have mainly argued that the binding theory reduces to feature checking under the Minimalist Program. However, not all anaphoric phenomena have been covered in this dissertation. For example, adjunct anaphors and discourse bound anaphors are not handled. Several arguments have been proposed for these kinds of anaphors: (i) A zero topic was proposed to provide a position for a binder (Huang (1984)); (ii) Logophoricity has been taken for the accounts of the seemingly unbound anaphors (Sells 1987, Reinhart and Reuland (1991, 1993); (iii) It has been claimed that unbound reflexives have the status of emphatic or intensified use of nonanaphoric pronoun. I leave these issues for further research.

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